

74/166

c

All uses of this manuscript are covered by a legal agreement between the Regents of the University of California and Albert J. Winkler, dated July 13, 1973. This manuscript is thereby made available for research purposes. All literary rights in the manuscript, including the right to publish, are reserved to the University Library, University of California, Davis, and The Bancroft Library, University of California, Berkeley. No part of the manuscript may be quoted for publication without the written permission of the University Librarian, University Library, University of California, Davis, or The Director, The Bancroft Library, University of California, Berkeley.

Requests for permission to quote for publication should be addressed to the University Librarian, University Library, University of California, Davis 95610, or The Regional Oral History Office, 486 Library, University of California, Berkeley 94720, and should include identification of the specific passages to be quoted, anticipated use of the passages, and identification of the user. The legal agreement with Albert J. Winkler requires that he be notified of the request and allowed thirty days in which to respond.

Oral History Program
University Library
University of California, Davis

Regional Oral History Office
The Bancroft Library
University of California, Berkeley

University of California, Davis History Series

California Wine History Series

A. J. Winkler

VITICULTURAL RESEARCH AT UNIVERSITY OF CALIFORNIA, DAVIS, 1921-1971

With an Introduction by

Maynard A. Amerine

Interviews Conducted by
Ruth Teiser and Joann Leach Larkey



A.J. Winkler
1971

Photograph by Albert T. Koyama

OBITUARIES

Albert Winkler; Authority on Viticulture

By MYRNA OLIVER, *Times Staff Writer*

Albert J. Winkler, one of the nation's foremost authorities on viticulture whose research contributed to the growth of California's wine industry, has died in a Davis convalescent hospital. He was 95.

In 1938, Winkler developed a system for classifying the most desirable wine grape growing areas in California by using "degree days"—calculating how many days in the April-October growing season each region registered the best temperatures for maturing vines.

The system is still in use today.

A Texas native who earned his doctorate in horticulture at UC Berkeley in 1921, Winkler spent much of his career as a specialist in wine grapes and wine making.

But during the Prohibition era, 1919-33, he switched his research to table grapes and in the late 1920s pioneered a sulfur dioxide gassing process that made it possible to ship and market California grapes in the East.

After Prohibition, Winkler returned to wine grape research. A UC Davis faculty member for four decades, he headed the university's department of viticulture from 1935 to 1957.

In his work on degree days, Winkler identified five zones or regions throughout the state, with I and II the best for nurturing wine grapes. His Zone I, including Oakville in the Napa Valley, was considered comparable to Burgundy, a major wine center in France.

His Zone II, including most of Napa and Sonoma counties, was compared to Bordeaux, another historically fine wine-producing section of France.

Winkler's book "General Viticulture," published in 1962, became an international text on wine grapes and was translated into several languages.

Winkler continued his research even after he retired from the UC Davis faculty.

A memorial service was held Tuesday in Davis for Winkler, who died Aug. 29 of natural causes.

Winkler is survived by two daughters, Marjorie Morris of Sacramento and Ethel Plocher of Watsonville.

His wife of 69 years, Pearl Buehler Winkler, died last year.

TABLE OF CONTENTS - A. J. Winkler

Foreword by J. Richard Blanchard	i
Preface, California Wine Industry Oral History Series	iii
Introduction by Maynard A. Amerine	iv
Interview History, Part One by Ruth Teiser	vi
Interview History, Part Two by Joann L. Larkey	vii
PART ONE - Interview conducted by Ruth Teiser	
Background of a Viticulturist	1
Industry Needs and University Studies in the 1920's	4
Prohibition Period Grade Varieties	8
European Observations; California Traditions	10
Research on California Climatic Regions	15
Working with Growers in the 1930's	22
Research on Pruning and Thinning	24
Maturity Studies	28
Vineyard Yields and Overcropping	31
Frosted Vines and Pierce's Disease	33
Vineyard Practices	37
Mechanical Harvesting	39
Vineyard Areas in California	40
American Society of Enologists	44
Viticulture and the Winemaker	44
<u>General Viticulture</u>	46
Working with Growers Since 1962	48
Wine Men	50

PART TWO - Interview conducted by Joann L. Larkey

Farm Boy to Doctor of Philosophy	53
A New Viticulturist Faces Davis Housing Problems	60
Teaching and Research at the University Farm	65
Recollections: Faculty, Students, Campus Landmarks	69
Prohibition and the University	77
European Sabbatical - Prelude to Enological Research and a New Department at Davis	79
Academic Research Aids Industry, Protects Consumer	82
International Significance of Work at UC Davis	85
Faculty Recruitment, Wartime Economies	88
Interdepartmental Approaches to Common Problems	92
A Long-Awaited Text for Students of Viticulture	94
Campus Administration and Academic Committees	95
A Backward Glance Over Fifty Years	102
Academic and Retirement Honors for a Viticulturist	104
Trends of the Future	109
The Winkler Vine - A Vine of History	112
Appendix	115
Bibliography	126
Major Research Papers	126
Additional Research Papers, 1925-1967	130
Additional Sources	135
Index	136
University of California, Davis	141
Wines Mentioned in the Interviews	143
Grape Varieties Mentioned in the Interviews	143

FOREWORD

The works of such scholars as D. K. Wilgus and B. A. Botkin remind us in a very direct way that our culture, and more specifically our folk traditions and heritage are often maintained by oral techniques. The spoken word and the remembered song are the voice of the mental memoir. It is far from surprising, therefore, that historians have turned to the oral interviewing of participants in events of note in order to achieve and recount a unique record. J. Michelet conducted written interviews with veterans of the French revolution and California's own H. H. Bancroft sent forth a small army of scribes during the latter part of the last century to record in writing those who had been a part of the history of the American West.

The electro-magnetic recorder, invented during the second World War, provided the technology necessary to give birth to a host of oral history programs in this nation. Since 1952 the programs developed at UCLA and at the Bancroft Library on the Berkeley campus of this university have performed a distinguished service in transcribing, editing and publishing the oral reflections of significant personalities in the academic and general life of this state.

The modest oral history program here on the Davis campus takes as its charge the history of agriculture in California and of the Davis campus itself. A new resource for scholarly research, therefore, has been added to the library's Department of Special Collections and an extended effort is being made to acquire significant records, personal papers and photographs that pertain to California agriculture and development of teaching and research programs at U.C. Davis.

Our oral history program is young in years and funding has been slight. John T. Rogers, the first employee at the University State Farm in 1906, was interviewed in 1967 by J. R. Blanchard and Don Kunitz and several unedited tapes have been made with UCD alumni. Since 1971, we have been fortunate to receive, however, the often volunteer assistance of retired business executive A. I. Dickman and noted local historian Joann Leach Larkey.

Mr. Dickman has just seen to completion the first publicly produced product of the Davis oral history program - the oral history of Professor Ben A. Madson. We are proud to present to an interested public this record of a pioneer in range management and early faculty member here at Davis.

And, it is with equal pride that our program has produced in cooperation with Ruth Teiser and Willa Baum, Regional Oral History Office, U.C., Berkeley, the following oral history of Professor Albert J. Winkler. Mrs. Larkey has been painstaking, efficient and sensitive in recording and editing this memoir reflective of the Davis experience of the architect of scientific viticulture in the United States. This Davis section, here combined with Ruth Teiser's interview of Prof. Winkler, provides an enduring record of the interaction between California's great wine industry and an equally proficient Department of Viticulture and Enology at U.C. Davis.

FOREWORD

This academic department could not have made its enduring contribution if it were not for the abilities of Professor Winkler manifested during his long association with the University of California.

I salute Mrs. Larkey and Ruth Teiser, therefore, for giving us a lasting document reflecting this contribution.

J. Richard Blanchard
University Librarian
U.C., Davis
May, 1973

PREFACE

The California Wine Industry Oral History Series, a project of the Regional Oral History Office, was initiated in 1969, the year noted as the bicentenary of continuous wine making in this state. It was undertaken through the action and with the financing of the Wine Advisory Board, and under the direction of University of California faculty and staff advisors at Berkeley and Davis.

The purpose of the series is to record and preserve information on California grape growing and wine making that has existed only in the memories of wine men. In some cases their recollections go back to the early years of this century, before Prohibition. These recollections are of particular value because the Prohibition period saw the disruption of not only the industry itself but also the orderly recording and preservation of records of its activities. Little has been written about the industry from late in the last century until Repeal. There is a real paucity of information on the Prohibition years (1920-1933), although some wine making did continue under supervision of the Prohibition Department. The material in this series on that period, as well as the discussion of the remarkable development of the wine industry in subsequent years (as yet treated analytically in few writings) will be of aid to historians. Of particular value is the fact that frequently several individuals have discussed the same subjects and events or expressed opinions on the same ideas, each from his own point of view.

Research underlying the interviews has been conducted principally in the University libraries at Berkeley and Davis, the California State Library, and in the library of the Wine Institute, which has made its collection of in many cases unique materials readily available for the purpose.

Three master indices for the entire series are being prepared, one of general subjects, one of wines, one of grapes by variety. These will be available to researchers at the conclusion of the series in the Regional Oral History Office and at the library of the Wine Institute.

The Regional Oral History Office was established to tape record autobiographical interviews with persons who have contributed significantly to recent California history. The office is headed by Willa K. Baum and is under the administrative supervision of James D. Hart, the Director of The Bancroft Library.

Ruth Teiser, Project Director
California Wine Industry Oral History Series

1 November 1973
Regional Oral History Office
486 The Bancroft Library
University of California, Berkeley

INTRODUCTION

We are fortunate to have this lucid and frank autobiographical account of Professor Winkler's career. It is not surprising to me that it is so orderly and logical. In more than forty years' association with "Wink," as his associates call him, as a student, colleague and friend, one came to appreciate his trained mind.

There are a number of surprises here, even for one who has known him this long. The negotiations for securing funds for the Enology Building are revealed here, I believe for the first time. His reluctance to reveal more of the Kerr story indicates that he knows more. He also reveals what everyone knew but no one has heretofore written that the chain of command at Davis for too long a period went from the departments through Berkeley.

Winkler's contributions to California viticulture are so great that the record of his research is almost a history of viticulture in California from 1921 to 1962.

His main research projects are carefully delineated: use of sulfur dioxide for shipping grapes, pruning studies, wine grape varietal tests, climate and grape composition, thinning table grapes, vineyard yields and the dangers of overcropping, and field studies on Pierce's disease.

Perhaps not emphasized sufficiently is the quality of his book General Viticulture. Not only is it beautifully organized and confidently and fully argued, but it is written in a crystal-clear Ciceronian-style prose.

As extra dividends there are generous and perceptive evaluations of his colleagues, Bioletti and Mrak, and of many others.

We also follow his career from a Texas farm, to Missouri, and finally to Berkeley and Davis. We learn of his post-retirement consulting work, of the Winkler vine, of College Park, of the Davis Budget Committee, and of his LL.D.

What he does not say is the special quality of his concern for his staff. As an administrator, Winkler was naturally concerned about the quality of the research in his department. But once the research project was assigned he left it up to the staff to conduct the research in the way they thought best. This gave a freedom to the research efforts of the department that, to this prejudiced observer, paid handsome dividends.

As a professor he was a student's ideal professor, as a research viticulturist he was imaginative and productive (e.g., Faculty Research lectureship), as an administrator he was a successful lobbyist for the department and completely fair in his relations with his staff, and as a person he was honest and real.

Maynard A. Amerine
Professor, Viticulture & Enology

1 August 1973
101 Wickson Hall
University of California
Davis, California

INTERVIEW HISTORY - PART ONE

Albert J. Winkler was born in 1894 on a farm in Texas. He graduated from the University of Texas in 1918 with an A.B. degree in plant physiology, received the M.A. degree subsequently from the University of Missouri, and came to the University of California, Berkeley, where he received the Ph.D. degree in horticulture and plant physiology in 1921. All of his career since has been centered around the University of California at Davis, as he recounts here, and has encompassed basic research, work on the state's vineyards, and responsibility for internal university affairs, until his formal retirement in 1962.

The initial interviews with Dr. Winkler (conducted as part of the wine industry series of the Regional Oral History Office of the Bancroft Library, at the University of California, Berkeley), were held on August 21, 1970, at his office on the Davis campus. One session was held in the morning, the second that same afternoon. Dr. Winkler had been apprehensive about finding time for such interviews in his schedule of consulting and editorial work, and about his ability to recall events without refreshing his memory by going over his papers. He appeared relieved when his memory proved equal to the task, and when he found he could complete his recollections for the wine series within one day.

His ability to render a clear account, his directness, and his mild humor were apparent in these interviews as they were in those conducted by Joann L. Larkey.

The transcript of these two interviews was sent to Dr. Winkler on July 19, 1971. He edited it carefully, making a number of additions and clarifications, all brief.

Additional information on the interviews with Dr. Winkler is given in Mrs. Larkey's interview history, which follows.

Ruth Teiser
Interviewer

1 September 1973
486 The Bancroft Library
University of California at Berkeley

INTERVIEW HISTORY - PART TWO

The two-fold opportunity to interview one of the Davis campus' most distinguished faculty members and to help develop an oral history program for the University Library was eagerly accepted in 1971 by this student of local history. A need for further documentation of changes that have transformed the 779-acre University Farm, which was located at Davis in 1906, into a 3,700-acre general campus of the University of California was first recognized in the mid-1960s when several centennial publications were being researched. During the process of rapid campus expansion old landmarks were fast disappearing. An alarming number of links with early campus history were being lost, and the broad impact of individuals long associated with the Davis campus was seldom reflected in scientific publications.

Fortunately, oral history programs at UC Berkeley and UC Los Angeles had already begun to collect the personal recollections of significant persons who have influenced the development of California agriculture and its related environmental sciences. In preparing for the conversations with Dr. A. J. Winkler, this inexperienced interviewer not only received the fullest cooperation of library staffs at Davis and Berkeley, but also had the benefit of expert advice and the examples of previously published interviews. The Reminiscences of Judge Peter J. Shields, the autobiography of Dr. Claude B. Hutchison, and completed interviews in the series pertaining to the California wine industry all provided valuable background information.

We are especially indebted to Willa Baum, director of the Regional Oral History Office in Berkeley, and Ruth Teiser, project director for the wine series. The concept of a two-part interview with Dr. Winkler evolved when Dr. Maynard A. Amerine suggested that, in addition to his contributions in the fields of viticulture and enology, Dr. Winkler should be interviewed regarding development of the Davis campus. We are further indebted to Dr. Emil M. Mrak who, as retiring Chancellor at Davis in 1969, provided a special grant to the University Library for this part of the jointly sponsored interview.

The pleasures of participating in this project were many. However, despite the fact that this interviewer has enjoyed a long-standing acquaintance with the Winkler family, even grew up as the next-door neighbor of Maynard Amerine, she freely acknowledges that her previous expertise in the field of viticulture and enology was principally limited to a gastronomic interest in the grape and its by-products. The vast scope of Dr. Winkler's academic career as it relates to California's grape and wine industry was first revealed in his conversations with Ruth Teiser. The transcript of their interviews of August 21, 1970 was of great value in preparing for the

second series of interviews that would pertain to Dr. Winkler's long association with UC Davis. Preliminary conversations with Dr. Amerine, Willa Baum, Ruth Teiser and Dr. and Mrs. Winkler were also helpful.

The narrator himself, though a modest and unassuming man by nature, proved to be cooperative in every respect. His sense of history prompted him to respond honestly to questions on subjects he might not have discussed voluntarily. Readers will no doubt wish he had elaborated further on some subjects. Blessed with excellent health, Dr. Winkler revealed a keen mind and beguiling wit with soft-spoken words. Since his retirement in 1962, his daily routine has changed little. A call or visit to his office in Wickson Hall, where our first interview was conducted on September 21, 1971, usually finds him at his desk, painstakingly preparing a revised edition of his authoritative textbook, General Viticulture, or assisting those who seek his advice. Likewise, Mrs. Winkler remains active in community affairs, using her creative talents to enrich the lives of senior citizens in Davis through a new visual awareness program.

On March 17, 1972, Dr. Winkler visited the Special Collections department of the University Library, assisted with identification of photographs in the archives, and was interviewed in depth on several subjects previously discussed. When the last few minutes of that second conversation failed to record on the tape, the narrator graciously completed his commentary with handwritten notes inserted during the editing process.

Editing of the transcript by the interviewer principally consisted of consolidating the tape-recorded remarks to assure continuity of chronology and subject matter. The narrator, in turn, made minimal changes or deletions in the edited transcript. He carefully checked the spelling of names and, as requested by the interviewer, made several handwritten additions to subjects that were discussed. Despite his busy schedule Dr. Winkler found time to complete the final editing during a two-week period, May 12-28, 1972.

Dr. Winkler also provided an up-dated bibliography, a two-part chronological listing of his major and minor publications to date. The third part, compiled by the interviewer, is a general listing of sources relating to topics mentioned in the transcript. An additional effort was made to collect references that document the history of the Department of Viticulture and Enology at Davis by consulting departmental files, the bibliographical and pictorial files of the University Archives, and the Office of Public Affairs. Individual faculty members were also contacted and a partial listing of sources was prepared in conjunction with a UC Extension course, "The Book Lover and the Library," taken by this interviewer during the winter quarter of 1973.

Illustrations included in this volume were selected from Dr. Winkler's personal collection, the A. J. Winkler Library in the Department of Viticulture and Enology and the University Archives. Photographs taken prior

to Dr. Winkler's first visit to the Davis campus, in 1919, indicate that further review of early departmental records, press releases and agricultural publications might provide a more complete account of courses in viticulture and grape processing that were offered at the University Farm beginning in 1908-1909. Uncatalogued records currently stored in both Wickson and Cruess Halls might yield additional further information, since the jointly organized Department of Viticulture and Food Products was headquartered at Berkeley until 1935. Additionally, we would like to know more about the pioneer vineyards that once flourished on the Putah Creek farms that today are a part of the sprawling Davis campus.

Readers of this interview will be further indebted to Dr. Maynard A. Amerine for his personal evaluation of Dr. Winkler's special qualities and academic accomplishments, as stated in the Introduction.

Joann L. Larkey
Interviewer

May 1973
Oral History Program
Department of Special Collections, Library
University of California at Davis

A. J. Winkler

Part One

Interview Conducted by
Ruth Teiser

BACKGROUND OF A VITICULTURIST

[Date of Interview: August 21, 1970]

- Teiser: I have just read a statement you made in 1962: that the past forty years of viticultural research have brought more progress in production than the prior century.
- Winkler: Yes. That's true.
- Teiser: And you said that actually since Repeal there's been--
- Winkler: I think there's been more progress since Repeal than there was in the prior century because we've had the tools to work with-- scientific procedures. You see, when I came to the Department we had no equipment. I did my pruning work, at least the first part of it, in the field laboratory. Finally, after two or three years, we had laboratory equipment whereby we could do the necessary analyses--but up until that time it was just physical measurements. Of course in the case of pruning, from the point of view of practical application, that was adequate. [But] we didn't agree.
- Teiser: Is it correct at all to theorize that viticulture has grown from a kind of folk art to a science?
- Winkler: It was an art for centuries. The pruning was an art. They didn't change; they may have made one spur a little longer or changed the shape of the vine, but outside of that they didn't have any physiological basis for what they were doing.
- Teiser: Was it kind of like a craft that was passed from one person to another?
- Winkler: Exactly. That was it. It was passed on. I made the statement in my faculty research lecture that the two outstanding viticulturalists of the last centuries had made changes which were probably the first that had been made knowingly, or purposely-- that is [Jules] Guyot and [Gustave] Foex, in France.

- Winkler: They were two of the men who made slight changes, but they were changes in which you might call art. Their changes were based solely on observational evidence.
- Teiser: It was just immediate results in the vineyard that they had to go by?
- Winkler: Yes.
- Teiser: Let's go back to the beginning of your career.
- Winkler: Okay!
- Teiser: Where and when were you born?
- Winkler: The Grove, Texas. I imagine it had a population of about fifty. Almost in the heart of Texas, about sixteen miles northwest of Temple, in a mixed farming set-up. That is, we had cattle, sheep, and forage crops. We didn't grow cotton, although cotton was the cash crop for most of the people within commuting distance. The date was March 4, 1894.
- Teiser: Did you have any early interest that would have led you into this career?
- Winkler: No. Let's not kid ourselves. We had considerable range land, and there were six species of grapes growing on our land. But they were just another wild plant that produced edible fruit. We had wild plums and blackhaws which we kids would eat, but only the plums and grapes were utilized. We gathered fruit of mustang, which is Vitis candicans. Its fruit never attained a very high level of sugar. We made wine, but there's no connection between that and my present profession.
- Teiser: Was it unusual for people in that time and place to be making wine?
- Winkler: I don't think it was unusual.
- Teiser: A lot of people did?
- Winkler: We didn't have to have any permit or anything. We made a fifty-gallon barrel of wine annually.
- Teiser: Had your parents come from Europe?
- Winkler: Yes. My parents were from Germany. My father came over in 1859

- Winkler: and my mother in 1872. Father came over while still young to get out of the military service, but that didn't carry over. Two brothers and I were in World War I.
- Teiser: So you grew up there in Texas?
- Winkler: Yes. I walked a little over a mile to elementary school, and went off a hundred miles from home to go to a boarding high school--it was called a college, but it was high school grade. And then I went to the University of Texas.
- Teiser: When did you first become interested in grapes as such?
- Winkler: After I had obtained my doctorate from the University of California.
- Teiser: Not until after?
- Winkler: No. I had three possibilities--three positions offered to me after I received my doctorate.
- Teiser: That was 1921?
- Winkler: Yes. One of them was in Washington State to teach some six or eight courses. Well, I eliminated that one fairly easily. And another one was in Fruit Products, and the one in Viticulture. Of course Fruit Products and Viticulture were one and the same department at the time. They called them divisions.
- Teiser: That was in Berkeley, not here [Davis]?
- Winkler: Yes. But my position was here; the Fruit Products position would have been in Berkeley.
- Teiser: I see. So you chose what became your career on the basis of the job you liked best?
- Winkler: Yes. That was it. I've never had a course in viticulture.
- Teiser: You've never had?
- Winkler: No.
- Teiser: Did they teach one?
- Winkler: Yes. But you see I was taking my doctorate in pomology and plant physiology.

*For additional details of early life and education, see pp. 53-58.

- Teiser: Was it [Frederic T.] Bioletti who would have taught it?
- Winkler: More likely Mr. [Leon O.] Bonnet. Bonnet was here, and all the viticulture work was given here. You see, at that time the junior and senior students in agriculture at Berkeley spent one or two semesters at Davis. That was all.
- Teiser: I see. So you came into the Department among men who had studied specifically viticulture?
- Winkler: Oh, yes. Bonnet was a Frenchman. And Bioletti took work under [Eugene W.] Hilgard. Bioletti joined the staff as cellar-master in 1889, and he was on the staff until 1935, when he retired. He was chairman of the Department from 1912 to 1935.
- Teiser: Was it he, more than anyone else here, who carried the pre-Prohibition tradition through?
- Winkler: Yes. At the time I came on there were two men here at Davis. (Bioletti was at Berkeley and never moved to Davis--though he often came here for a few days.) [Friedrich C.] Flossfeder, who studied at Geisenheim in Germany--their principal viticultural school--and Bonnet, who was a graduate of the National School of Agriculture at Montpellier, France, were stationed at Davis. They retained much of the European point of view. Flossfeder was the typical "German" professor of his time. He resigned the year before I came, so I more or less followed in the same position but not in his philosophy. Mr. Bonnet resigned about 1925. But in the meantime we'd taken on Mr. [Harry E.] Jacob, who had earned the Master's degree in pomology at Berkeley during the time I was there.

At that time there was a turning point in the development of the department. Jacob and I had the benefit of good training, so all of our work was on a more scientific basis.

INDUSTRY NEEDS AND UNIVERSITY STUDIES IN THE 1920's

- Teiser: Why in 1921, of all years, was there very much interest in viticulture?
- Winkler: High returns were followed by tremendous planting. We had the largest acreage we've ever had in 1927, approximately 650,000

- Winkler: acres. Prohibition came in in 1918, and we were shipping wine grapes to the East where they were made into wine in bathrooms and basements. The bootleggers, too, were beginning to operate. So, for a few years right after World War I, everything in viticulture was booming.
- Teiser: Did the vineyardists here shift quickly or slowly, through trial and error, to grapes that would ship?
- Winkler: They would have shifted rather quickly but for the limited number of refrigerated railroad cars. And we came into the picture then, trying to develop a process--our SO₂ work, whereby grapes could be moving to the East without refrigeration. We developed a method for moving them in closed containers, but the grapes were spoiled. That is, we could keep them from fermenting but they were unsuitable for any use. We had to use so much sulphur dioxide (approximately 600 ppm in the grapes), which released the tannin from the skin and seeds, so that they were too tannic for human consumption. Anything made out of them was loaded with tannin. So these grapes were not suitable for conversion into wine. But in the same study we developed a process for the preservation of grapes in open containers with sulphur dioxide. This was an outstanding contribution to alleviate the difficulty of moving grapes to the Eastern market. What they'd wanted to do was move them in cattle cars. The treated grapes still had to be moved in refrigerator cars, but spoilage in transit was minimal.
- Teiser: By open containers, you mean--
- Winkler: In boxes. Just the same way they ship them now--26-pound lugs.
- Teiser: With icing?
- Winkler: Yes, they used icing--the same as they do now--with bunkers at either end of the car and the natural circulation to cool the grapes. At present there are also mechanical refrigerator cars.
- Teiser: Did you make any efforts to develop techniques for shipping really good wine grapes, or was there no point in that?
- Winkler: Oh, yes. That's what our effort was directed toward. You see, they'd load their grapes and then put a pan of sulphur in the middle of the car, in between what we call in the brace. The brace kept the boxes from shifting. It occupies a space of two to three feet in the middle of the car where there are no boxes. And that extends across the car. So they could place a pan of sulphur there and light it, but the difficulty was that it

Winkler: didn't create enough sulphur dioxide to do any good. It only warmed up the grapes--possibly the upper boxes at the brace would be bleached and rendered practically unfit for use, while the grapes in the lower part of the load toward the ice bunkers didn't get any of the sulphur dioxide, so they were not preserved at all. That is what had been done before we came into the picture.

During our work on preservation in sealed containers--that didn't work--we also put some grapes in a hood--one of these places that's ventilated in the lab--in open boxes and released sulphur dioxide from a cylinder--just enough not to bleach the grapes. These grapes kept for two or three weeks, so that's where we got our clue. And then we went on from there.

To begin with, we did not have the use of sulphur dioxide in cylinders, so we devised a container with an inside diameter such that it would take a rack of five pans of sulphur, with an inlet at the bottom and an outlet at the top. We put a vacuum cleaner fan at the lower inlet and then attached a stovepipe--four-inch stovepipe--about thirty feet of it, carrying it back and forth in three ten-foot lengths, with water running over the pipes to cool the gas before it went into the car. You see, by putting five pans one on top of the other, the added heat, and the forced air gave us rapid burning; it was an efficient SO_2 generator. The difficulty was getting the gas cool enough so it wouldn't injure the grapes. We actually used this equipment on a refrigerator car; in 1924 I went over to Zinfandel, about three or four miles south of St. Helena and actually treated a carload of grapes. As you know, the grapes are loaded in rows running lengthwise of the car with spaces between them. So we hung bags in there--cheesecloth bags filled with grapes. Then the car was treated with our SO_2 generator. After waiting about 30 minutes after the treatment, we went into the car and retrieved the bagged samples and determined the parts per million of sulphur dioxide they contained. We were quite lucky. We had somewhere between fifty and one hundred parts per million of SO_2 . Those grapes sold very well on the Eastern market. By 1927, 10,000 cars were treated. And now practically every carload of grapes that goes out of California is treated with sulphur dioxide.

Teiser: With basically that same kind of equipment?

Winkler: Well, we had difficulty getting the gas that we generated cold, and about that time cylinders of sulphur dioxide became available--so this source of SO_2 was used. It took about ten pounds of sulphur dioxide to treat a car of 17 tons of grapes.

Winkler: The cylinder of SO_2 was placed on a scale and then the valve was opened. The gas would expand and flow out. The California Fruit Exchange took up this procedure and to get the gas to expand more rapidly, they placed the SO_2 cylinder in hot water. The tube through which the SO_2 was released was headed directly into the rotor of a fan, so you see it was mixed with air, and then blown into the car. The traps at both ends of the car, where they put the ice in, and the drains at the bottom were all open. So what we actually did was to displace the air in the car with a sulphur dioxide-air mixture. And, by releasing ten pounds in ten minutes we got about the proper number of parts per million of SO_2 into the grapes. They do it the same way nowadays.

Teiser: Whose grapes were they in that car that you experimented with at Zinfandel?

Winkler: J. H. Wheeler's. He was one of the big shots in the San Francisco Sulphur Company. He was a graduate of Cal--a self-made man. But he figured that he wasn't sharp enough to compete with the other people, so he was working on by-products, and sulphur wastes was one of their products, and I think he told me that they had certain residues that they couldn't use for anything else, so they converted them into SO_2 .

Teiser: And he was growing grapes up there?

Winkler: He was a vineyardist in the Napa Valley. He was interested in a market for SO_2 , so he was very glad to cooperate with us. And of course we were glad to work with him because with something new--you just don't get everybody to go along with you. This process of treating grapes with SO_2 is also used in all grape "cold storage houses." Its use has prolonged the storage life of all grapes that are stored. In fact, as a result of this treatment in storage along with a few earlier maturing varieties that were developed here, we have grapes available practically every month in the year.*

Teiser: I suppose one of your talents over the years has been to get along so well with the people who were growing the grapes that they would go along with you.

Winkler: Well, that's one of my talents--I can deal with growers. I grew up on a farm. We didn't call them ranches in Texas, but the size of the operation we had, if it had been here it'd been a "ranch."

*See also p. 78.

PROHIBITION PERIOD GRAPE VARIETIES

Teiser: The kinds of grapes that were being shipped during Prohibition . . .

Winkler: Those were Zinfandels, Carignanes, Alicante Bouschet, Green Hungarian in that first car that was treated with SO₂. The Green Hungarian were in very poor condition, and they didn't bring too much money, but the others sold well.

Teiser: Were you interested in the shift in the types of grapes that were grown during Prohibition?

Winkler: There was a shift made. We helped them along in procedures. You see, when the outlet for grapes was shifted from the usual channels during Prohibition; they had to carry to the Eastern markets. So there were certain varieties that would ship, and our best quality grapes wouldn't ship. So there was a shift in acreage from the good varieties to the more productive wine varieties, of lesser quality potentials, that would carry from California to New York, et cetera, and still be in reasonably good condition. Take the Chardonnay, Pinot noir, and White Riesling--they wouldn't ship. So they were grafted over to the varieties that could be shipped.

Teiser: What were the principal ones?

Winkler: Alicante Bouschet, Zinfandel, Carignane, Grenache, and to a lesser extent Grand noir and Mataro. They were practically all reds, because most of the wine produced back East was by people who preferred red wines.

Teiser: Were there any Missions still around?

Winkler: Oh, yes. Missions survived. They were shipped. But they were not as highly prized by the home winemaker as, say, Alicante Bouschet or Grand noir. Because Alicante Bouschet, when it's really ripe, the juice is red. And the same way with Grand noir and Petit Bouschet. Those three varieties, when they are ripe the color is released from the skin into the flesh, so you get a red juice, and they were preferred. Mission, Zinfandel, Carignane and Petite Sirah can be used for making white wine if you press them immediately and the grapes are sound. They'd pay most anything for a few boxes of Alicante Bouschet, and then they'd go down on the table grape market and get table grapes that had undergone sufficient spoilage so they were no longer attractive as table grapes, and buy these very cheap, and make a blend of the two which would be red.

Teiser: What kind of table grapes would they have been?

Winkler: They didn't ship many Thompson Seedless, but they'd be such standard varieties as Tokay and Malaga (a leading shipper), Muscat, Almeria and Emperor. We didn't have Ribier or Red Malaga then yet. Thompson Seedless came into favor after girdling was introduced. It has completely displaced the Malaga.

Teiser: So they were all California grapes?

Winkler: Oh, yes.

Teiser: Both table and wine varieties?

Winkler: Of course they had grapes of American origin in the East, but the people who made the wine during Prohibition used but few if any of those. They could buy our grapes cheaper than than they could buy those which were going into sweet juice.

Teiser: Well the growers, then, had to have some technical knowledge in order to do the grafting.

Winkler: Yes. We helped them with that. Bioletti and Jacob were the primary ones involved. They did a lot of just plain, everyday extension work during the early 'twenties. They were on the road more than 50 percent of the time. And at the same time they were teaching the people, especially the newcomers, how to train young vines and grafted vine. There was no research involved--just plain, ordinary common sense and the application of known principles. As a result, we probably have the best-trained vines in any country in the world at the present time.

And that was where the turning point came. You see, in Europe they had trained their vines from the ground up, and our early grape growers were mostly of European origin. They came over here to grow grapes, and they brought some of their cuttings with them. They could do that in those days. And then they'd start at the ground--they didn't use stakes--and you could raise them about the length of a spur each year. If you tried to bring them up faster without a stake they'd fall over.

Teiser: There are still some old vineyards in California like that, aren't there?

Winkler: Oh, yes. You go down through the San Joaquin Valley or up through the coastal counties you'll see them. They branch near the ground and have long arms. The short stems or trunk

Winkler: makes the usual cultural operations more difficult and costly. Some are still quite productive.

EUROPEAN OBSERVATIONS; CALIFORNIA TRADITIONS

Winkler: We became a department in '35 when Bioletti retired. [William V.] Cruess was appointed chairman of the Department of Fruit Products and I of the Department of Viticulture. I spent the second half of '34 in Europe.

Teiser: Yes. How did that happen? I've heard of that trip as being an important turning point in the progress of viticulture here. You had not been in Europe before?

Winkler: No. And I had no courses in enology. Professors Bioletti and Cruess were the only ones left on the staff that had had training in enology and actual winery practice. And when in 1934 Bioletti said, "You'd better go to Europe," I had a number of projects going and I wasn't too enthused to go. But he could foresee the importance of it better than I, because he had an enological background and I didn't.

Teiser: What did you do that year in Europe then?

Winkler: I visited twenty-nine federal--that is, tax-supported--institutions and five others--privately supported. I collected a lot of general information. Alsace provided specific information that was directly applicable to our situation. You see, Alsace had been a province of Germany from 1872 until 1918 when World War I ended. Then it went back to France. During the time that Alsace was in Germany, it was their mass-production area because it was the warmest part. The mass-production area of France is down on the Mediterranean, so when it went back to France, Alsace had to develop quality grapes. So they were confronted with the testing of varieties for the production of quality wines.

Teiser: I see. And you were working with an enological college there?

Winkler: Yes. All of the ones that I visited included either viticulture or enology or both. Most of them had both, and I visited with both groups of workers, but I got more information from the enologists, because that's where I lacked experience.

Teiser: Did you go to a lot of vineyards?

Winkler: Not too many vineyards. I saw vineyards, but I spent more time in cellars. And made a lot of friends.

Winkler: But in most of these institutions they were on an operational basis. They'd been doing the same thing for many years, you might say. And they had become oriented to what they thought was best-suited to their region, like the clarets in Bordeaux and the burgundies in the Côte D'Or region and the Rieslings along the Rhine, and so forth. After growing grapes for hundreds or thousands of years they'd eliminated a lot of varieties and had settled down on a few that were doing well. But Alsace was re-testing their varieties to determine which would best meet the new requirements. Out of that came their Gewürztraminer, White Riesling, Chardonnay, and one or two other premium quality wines. They did this in small containers, because, as we soon found out after we started--well, we knew it before we started--we'd have to work with small containers to keep within our budget. So beginning in 1935 we made 500 lots of wine a year, until World War II. It was mostly in five-gallon kegs. [Maynard A.] Amerine undoubtedly told you all about this.

Teiser: He discussed it, but from a different point of view. And he said that you would know more about a lot of the things that happened than he did.

Winkler: Yes. I told you the old mixed vineyards were good for us, valuable, because a lot of the people that came from Europe had their blends in the vineyard. So we could go into them and probably pick up four or five or more varieties in one vineyard.

Teiser: Is that right?

Winkler: It was. You see, if we'd had to establish varietals in the different climatic regions of California, it'd have delayed us five or six years. But with the grapes in these old vineyards, we got started in 1935.

Teiser: They planted many varieties in one--

Winkler: They were mixed up in the vineyard.

Teiser: They'd decide what blend they wanted in the wine--

Winkler: Well, they brought it with them from Europe.

Teiser: Do European vineyards have many varieties within them?

Winkler: A lot of them do. In the older days, they did. Well, they still do. In claret for instance, the Cabernet Sauvignon is the principal variety. But they've got Petit Verdot, Merlot, and Cabernet franc, so there's four varieties right off.

Teiser: And they mix them up in the vineyard?

Winkler: Yes. In the olden days they did. Now they have them in different blocks. And just to indicate that things are changing over there, in 1934, when I was over there, Merlot, Petit Verdot and Cabernet franc constituted about 15% of the blend of the clarets, and the Cabernet Sauvignon was 85%. Well, when I was over there in '56, 40% of it was Merlot. It ripens a little earlier, and the wine ages faster. Economics is beginning to pinch. So they're gradually shifting. Up until now we have had practically no Merlot in California, but there is much interest in it. Many of the growers are planting Merlot to blend with Cabernet. It's also a little more productive.

Teiser: More Petite Sirah is being planted, isn't it?

Winkler: Only limited acreages, since Petite Sirah has its disadvantages. In the coastal counties, especially the north coast, it tends to rot when the rains come early, and in the interior sunburns.

Teiser: You spent the whole year, then, in 1934, in Europe?

Winkler: No. Six months--I had a six months' sabbatical. *

Teiser: And then by the time you came back you overlapped just briefly with Bioletti again?

Winkler: Yes. I came back in December and he retired July 1, 1935.

Teiser: Did he continue active in his retirement?

Winkler: He came to Davis several times after we had made wine, and tasted with us. But he wasn't very helpful to us because his memory of pre-Prohibition wines had faded.

Teiser: And had he been a good wine taster? Had he had a good palate?

Winkler: It was my impression that in his active years he was good. I'd never worked with him. You see, he tasted wines at the State Fair in '35. But I didn't work with them. And when I participated in the wine tasting at the State Fair, it was several years later and with an entirely different group.

Teiser: That must have been an aspect of analysis that had to be learned from person-to-person, tasting.

Winkler: It had to be. You had to have a good memory. And you had to keep at it.

Teiser: Who were the good tasters in that early period?

Winkler: We had Wetmore, who was fairly good.

*See also pp. 79-80.

Teiser: Wetmore?

Winkler: Clarence, the brother of Charles who made a reputation for himself in the early history of wine production in California. He introduced important varieties and was an advocate of quality in wines. Clarence had a good palate. I never did develop a very sharp palate because of my age at the time that we started. But Amerine and I tasted twenty wines in the forenoon and twenty wines in the afternoon from the time we started, in '36, until World War II. I became fairly good, but I never was equal to Amerine. We now have a number of people in the department who are excellent tasters: Amerine, [James F.] Guymon, [Albert D.] Webb, and [Harold W.] Berg--those are enologists. And then we have [Curtis J.] Alley and [Lloyd A.] Linder in viticulture. There are also a few men from other departments-- [Edward B.] Roessler in Mathematics and [Luther D.] Davis in Pomology.*

Teiser: But there were not so many around earlier?

Winkler: Only Amerine and I. Didn't Amerine mention Mr. [Edmund] Twight?

Teiser: Yes, but would you discuss him?

Winkler: He came with us in '36. He was with the department 'way back--in the early 1900's, when Bioletti was on leave to South Africa. I don't know how long he was with the department--he was always wanting to move on, move on. From Berkeley he went to Australia, and he was with the Internal Revenue Service, as a gauger, and he was in industry, and he came back with us in '36 and stayed about four years. It was the best place in the world for him. He was old at the time. He could have spent his last years here, but no. After about four years he got restless and left!*** But he was a considerable help to us in the tasting. It gave us another point of view.

Teiser: Did [A. R.] Morrow ever come and taste with you?

Winkler: No. Morrow and Amerine, and I forget who else, tasted at the '39 World's Fair on Treasure Island.*** Then the industry had a brandy set-aside,**** to absorb surplus grapes and he and Amerine did the tasting in connection with that. So he was one of the hold-overs from pre-Prohibition that contributed quite a bit to the industry after Repeal.

Teiser: It's amazing that there was as much continuity as there was, after that long period.

*See also p. 92.

**See also pp. 80-81.

***According to Maynard A. Amerine's recollection, those who tasted with him at the 1939 Golden Gate International Exposition were George L. Marsh, Edmund Twight, Harold H. Price, and Charles P. Mathe. He did not recall A. R. Morrow tasting the brandy.

****Known as the prorate.

Winkler: I don't think I stated, but Amerine probably told you, that we were just about at the same point in 1934 as they were in 1880 when the viticultural work started. Because so many of the people had dropped out or passed on, or were forced into some other occupation. And we had only a few, like Morrow, the Wentes, and Georges de Latour to carry over. And the new people in the industry didn't know anything about varieties. They thought anything wrapped up in a grape skin would make wine. And, of course, the scientific phases of fermentation they didn't know anything about--bacterial spoilage and the control of other organisms. In that regard, Food Products was able to step in. Professor Cruess and his staff were able to step in and do more for industry right after Repeal than we were. You see, they were trained in food preservation--which required knowledge of spoilage organisms, et cetera. That is, their everyday activity was working with organisms, and of course we were working with wines and grapes. So they got in and did a lot for industry in the first ten or more years after Repeal.

[Discussion, off tape, of some interviews held previously]

Winkler: Well, I think a great deal of [H. O.] Lanza. He's one of the best friends I have in the industry. I can shove a lot of them in that "one of the best."

Teiser: However, you and Mr. Lanza depart on one point, don't you? He makes a wine of the Nebbiolo grape that you don't think is a good wine grape. Is that right?

Winkler: Well, we've never been able to get a name for it. I don't think we've ever differed on the wine, but we just don't have a name for the grape. He calls it "Nebbiolo" but it isn't a Nebbiolo. That's where we differ, but we've never been able to come up with the right name for it. It's one that he introduced from Europe, and of course there are 8,000 or more named varieties, so we've never gotten the right one, that's all. His Nebbiolo is a variety that we've never been able to identify. We just don't have it in our collection. We have about 2,000 here, but we don't have his grape. That is, we have Nebbiolo fino, just plain Nebbiolo, and one or two others that I can't think of right now.

Teiser: Oh, that's it; I see.

Winkler: It's the variety that we differ on, not the wine. We don't differ, we just don't have a name for it.

See, there are several like that. Take our Zinfandel. It was brought in from abroad. We have never been able to get

Winkler: the European counterpart of it. It is in several European countries now, and they're going to try to run it down for us. Dr. [Austin C.] Goheen--he's a plant pathologist with the federal government [U.S.D.A.] but he's stationed here at Davis--was in Italy last year and he thinks he found it. I'd better not give you the name of it, because he might read this some day, but he thinks he found what we call Zinfandel. I saw it in France when I was over there in '56, but it had come from here.

Teiser: This is one of the things that Mr. [A.] Perelli-Minetti is interested in, and he tried to find it once in Hungary, he said, and couldn't.

Winkler: Well, you see, they have one in Hungary called "Zierfandler." And [Agoston Haraszthy or Wetmore--I forget which one of them brought it to California. We know that Haraszthy brought in a lot of varieties, and the labels of some were lost; the strings had rotted. They had tied them with string. They eventually got the most of them right, but Zinfandel could have come under those circumstances. Or Zinfandel could have come in under the name of some other variety and have been a sport. There might have been one cane of a vine which was different--was the Zinfindel--a mutation. And the rest of the vine may have been something else, and we happened to get the one cutting that was different. We don't know just how it came in.

Teiser: It's a great game, though, trying to find out.

Winkler: Yes. Well, you see we don't have the European ancestor of Mission. Mission's supposedly been in California since 1769.

Teiser: And we don't know the ancestor?

Winkler: We don't know. You see the priests brought a lot of varieties over as seeds, and of course seeds don't come true. In my book* I say that Bioletti thought it might have been an offspring of Monica, which is widely grown in Spain. [Harold P.] Olmo, I think, could run that down. I've talked to him about it--he thinks he might get at it some day.

RESEARCH ON CALIFORNIA CLIMATIC REGIONS

Teiser: I was about to ask you--when you returned, then, from Europe in

*General Viticulture. See Bibliography, p. 129, #56.

Teiser: 1934, what was your main effort? You said that the Food Products people were able to respond immediately.

Winkler: They took care of the problems in industry. They were equipped to do that, you see.

Teiser: What was your effort, then, at that time?

Winkler: We did as much as we could to advise them about varieties and that sort of thing, but we plunged into the work to improve quality--the factors influencing quality: variety, climate, soil, and so on.

Teiser: What varieties did you recommend?

Winkler: Well we had no basis for recommending any excepting those we'd inherited. There were some varieties that were recommended for the coastal region before, and others that were recommended for the interior; but our findings haven't always jibed with those earlier findings.

Teiser: Did you start, then, intensive research on what--

Winkler: Yes. As I said, we made 500 lots [of wine] a year, and every one of those was true to name and came from a given region. That is, Amerine and I went in the field and collected these grapes, because you had to know the variety if you were going to bring it in and have something authentic to work with. Amerine had taken my courses, and he had a speaking acquaintance with the varieties --probably not quite equal to mine. We just wandered through the old mixed vineyards with our boxes, and found what we were looking for, or found another variety that we also wanted. Then we'd look around to see whether there was enough of it to make a lot of wine. We had to get about 100 pounds of grapes to make a five-gallon lot of wine and have enough juice left--or enough wine left--after the fermentation to take care of the loss in ullage, and in racking. We carried that on in glass, and of course when we racked the keg we racked it in, too, so it would come along at approximately the same rate of aging.*

So our principal purpose in the beginning was [to learn] the effects of variety, climate, and soil.

Teiser: You had to keep analyzing many factors, didn't you?

Winkler: Well, you see, after we had obtained a lot of quality scores, and had the chemical analyses on the same wines, then we tried to correlate these with something. Variety--we couldn't argue with that. That was there; it was a definite entity. But what made this variety good here and didn't make it good yonder? That was

*See also pp. 20, 22-23 and 80.

Winkler: where our temperature work came in, and I took care of that.

Teiser: Had any work been done like that before?

Winkler: Bioletti had indicated that the grapes from the San Joaquin were more deficient in acid than those of the Coast, but he hadn't correlated it with anything. Then we tried to correlate our scores with heat summation--as day-degrees above 50°F. from April 1 to October 31.

Teiser: I was trying to trace your research on this back through the published literature, and I believe the first thing I could find was an article in the Wine Review in 1937 titled, "What Climate Does."*

Winkler: Yes. That was one of the first ones. It dealt only with the influence of climate in 1935 and 1936.

Teiser: One of the first?

Winkler: Yes. And then we had another one pretty close to that, "The Effect of Climatic Regions."** And then what we did was to try to correlate our scores--with temperature. You see, the thing that brought us around--I'd done this same thing on table grapes before, so it was only logical to try it with wines.

Teiser: You had?

Winkler: Yes. I'd done it in connection with the maturity work on table grapes. But we didn't have the same correlation there. We'd just gotten the climatic effects.

Teiser: So you had done work on climate?

Winkler: Yes, and there we eliminated everything below 50 degrees, because grapes vines don't start to grow until the mean daily temperature gets to fifty. And if you included all of that mass below 50 it would tend to mask the effect above 50. So we were already familiar with that part of it. But we found that of the factors that we had available that the scores correlated better with the heat summation than with anything else. And on the basis of that--the correlation of heat summation in these various regions with score--we divided the state into five climatic or viticultural regions.

* See Bibliography, p. 127, #28.

** See Bibliography, p. 127, #30.

Teiser: When did you first start calling them "regions?"

Winkler: If I remember correctly it was in the late 1930s.

Teiser: By '43 I see you were calling them regions.

Winkler: Yes. I think we called them regions in that one--"The Effect of Climatic Regions, Influence of Regional Conditions on the Acid Content of Grapes," that's 1938. We did not call them regions I, II, III, IV and V yet. We had our usual representatives of the five regions: Bonnie Doon, Santa Rosa, St. Helena, and Lodi, and Fresno.

Teiser: I see. Let me just put this citation on tape: This is from the June, 1938, Wine Review. "The Effect of Climatic Regions."

Winkler: Wait, there's another one, "What Climate Does."

Teiser: That was the 1937 one, wasn't it?

Winkler: Yes. No, we don't have regions in there. We have years--the effect of years. We had '35 and '36; those were two very different years. '35 was cold and '36 was hot. By saying "cold" and "hot," that's relative. I probably should have said '35 was "cool." Because we rarely have a cold season in California like they do in Europe. 1971 was cold to mid-June.

You've also heard about the "vintage years" and the "non-vintage years"--well, ours don't fluctuate over as wide a range as they do in Europe. But in Europe the heat summation is the biggest factor. They probably won't admit it. The French put a lot of emphasis on soil--their calcareous soil. And right in that same connection we should say that grapes are adapted to a very wide range of soils, heavy clays to blow sand--we have blow sand down here at Delhi and down in Coachella Valley. Delhi is just this side of Merced, between Modesto and Merced.

The clincher in the matter is that whenever they have a vintage year in Europe, it extends over all their different soils, and when they have a non-vintage year it extends over all their different soil types. But still they maintain--you can't argue with [them]--they're still inclined to place a lot of emphasis on soils. And a lot of our growers, still carrying over: "Well, is the soil right for vineyards?" Practically any soil we have in California, if it's deep enough to hold water, or if we can irrigate, will grow grapes. Of course there's a difference in the manner of handling soils. Medium-textured soils are easier to handle.

Teiser: Are you taking into account that then you'd have to add certain nutrients to certain soils, fertilizers?

Winkler: In California the principal one added is nitrogen--on the shallow soils or the very sandy ones. We have one little area down here someplace--Ballico (it's in Merced County), where there is a potassium deficiency. So far we haven't established a very definite deficiency of phosphorous.

Teiser: I was talking with a wine man and vineyardist who said he wasn't sure about this business of fertilizing--that the technical people say if your soil lacks this, just put that in, but that he rather tended to use complete fertilizers, animal fertilizers.

Winkler: Well, there's a lot of fertilizer sold to vineyards in California --some of the Thompson Seedless vineyards are over-fertilized to the extent that they would set better if they didn't have so much. I think it's something like 20%.

Teiser: Back to the zones, the regions. This is California Agricultural Experiment Station Circular 356, August, 1943, "Grape Varieties for Wine Production,"* here the regions are spelled out in detail as you perhaps recall. Was that your first really detailed publication on it?

Winkler: Yes. This, you see, was a summary, you might say, of the Hilgardia article--"The Composition and Quality of Musts and Wines of California Grapes."** I think it came out in '44.

Teiser: And that was your major publication on all this work?

Winkler: Yes. This was our first, you might say, complete--bringing it up to date, at that time. Then that was followed by a publication on "California Wine Grapes: Composition and Quality of their Musts and Wines," Bulletin 794, 1963.***

Teiser: This was for the people who were really working with grapes?

Winkler: Yes. That was put out for that purpose.

Teiser: Those experiments on the regions, you and Dr. Amerine worked them out?

*See Bibliography, p. 128, #37.

**See Bibliography, p. 128, #38, and p. 92.

***See Bibliography, p. 129, #57.

Winkler: Yes. I supplied the temperature data and he made the wines and supplied the scores and analytical data. We worked together in bringing the grapes in. The first year we stemmed them by hand.

Teiser: What year was the first year, then?

Winkler: '35.

Teiser: You stemmed them by hand?

Winkler: The Department did not own a grape stemmer, so we rubbed the clusters over a wooden screen to stem them, by hand. Of course our hands looked like heck!

Teiser: Dr. Amerine said that about 1938 the University administration decided enology research should be expanded and that he didn't know exactly why the decision was made, and perhaps you would.

Winkler: We'd gotten to the point where we were hemmed in. You see when we started right after Repeal, we took our box and tray shed out on Hutchison Drive and converted it into a winery. That was our fermentation room. And a year later, I think, or maybe that same year, a basement was dug under part of our field house, and that was our aging cellar. We had indicated sound progress showing the relation of variety and climate to quality. I think that is what he was getting at. I met with Mr. Critchfield--did you talk to him?

Teiser: Burke Critchfield? Yes.

Winkler: He and I went to see Mr. [A. P.] Giannini. He was a member of the Board of Regents at the time. And of course [Claude B.] Hutchison knew about this.* And by that time we had made enough showing to convince the administration that we needed more space, and needed more men. Where did you talk to Amerine? Here?

Teiser: Yes.

Winkler: Did he show you what we had in the way of the cellar? That was built in '39. And in '39 we brought on the first additional staff members in the wine work--Guymon to take care of the brandy production and [John G. B.] Castor as microbiologist. And then, unfortunately for the continuity of our work, Amerine, Guymon and Castor went into the Army. That wasn't all; other staff and technicians were involved. We gave twenty-six years to the armed services during World War II. I took care of the cellar, that is the racking and bottling, during World War II. We didn't make many wines.**

*See also pp. 95-97.

**See also pp. 89 and 91.

Teiser: Your studies on climate and quality, have they been continued since these publications?

Winkler: No. Not until recently. They've just taken the figures that Amerine and I published, and have built onto that. At present an identical group of varieties is being grown in the different regions to supply added data. We've made one correction.

Teiser: Only one?

Winkler: This one was right on the upper doorstep, you might say--at our Oakville station. We have forty acres over there, the original acreage the University purchased in '47, and then in the '50s--somewheres in there--the Napa growers combined with us and we obtained the use of the federal station, another twenty acres--0.7 of a mile from the University plot.

In my original work on climatic regions, we used eight years of records for the federal station, and it was in the mid-range of Region I. But new temperature data place it in Region II (laughter) It's not too serious. In my book I have, and I think we have always emphasized the fact that we can't draw sharp demarcations between regions because we don't have enough temperature stations. Two-hundred-and forty or something like that scattered over as big a territory as California--and many of those don't mean much in grape production--like Los Angeles, up on the fourteenth floor of the City Hall. It doesn't give you much agricultural information. The same way with practically every town of any size; their temperature station is located for Chamber of Commerce purposes.

Teiser: Ah, yes. (laughter) I have heard people say, "This side of the hill is better; and when you get over there you can't plant that kind of grape," and discuss these very minor variations in areas. Is that myth?

Winkler: We don't do that in California. We have no basis for that. Now in Germany, or in Northern France, they do. But here we go out and harvest this whole field, and dump it into the same fermenter, and we don't keep anything separate. We gather grapes from all different locations, and if they're Cabernet we put them into the Cabernet vat till it's full, and then we start another Cabernet vat, but we don't segregate on the basis of grapes. So there's no basis for that in California. In my book I point out that the further division of climatic effects will have to be done by the growers, because they alone can afford the necessary instruments and manpower to do this. Up until now we've just had general temperature information.

Winkler: In Germany, they'll pick the grapes off this slope and keep them separate, and then they'll go on the north side of the hill and keep that separate. By doing this they obtain the highest possible quality from each location. They can get information like that, and they've done it regularly.

Teiser: Do any of our very fine, small winemakers do that?

Winkler: Not to my knowledge, unfortunately. Well--up until now the incentive hasn't been there to do it. Now, with \$500 a ton Pinot Chardonnay, why they might be doing some segregation in order to get a return on that money. You see, we had a frost in 1969, and that's the reason for the unusual prices. The high prices, however, will continue until the supply of grapes catches up with demand.

WORKING WITH GROWERS IN THE 1930'S

Teiser: When you and Dr. Amerine went up and down the state gathering grapes, did you find all the growers quite cooperative?

Winkler: Generally speaking, it was amazing how well--how willingly--they cooperated with us. Of course, we paid for the grapes where they wanted us to pay for them. Because it was cheaper for the institution to pay for this lot of grapes than for us to take the time to find a vineyardist who would give them to us. The growers always gave them to us. That's the reason that we had to work with small containers. We've been criticized for the small containers, but economically it was a necessity. You see, a five-gallon container required only a hundred pounds of grapes. But if we wanted a 50-gallon barrel that would have meant a thousand pounds of grapes. We couldn't possibly have brought them in with the equipment we had. And none of the small growers would have let us have a thousand pounds, whether we paid for them or not, because it would have taken too much of their product.

Teiser: Did you always give them reports of the wines made from their grapes later?

Winkler: We didn't report back, but when we went back to collect the next year, we'd talk to them. As a matter of fact, after a year or two when we went to collect grapes we always took a technician along to do the picking while we talked to the grower--there was that much interest.

Winkler: We would get a half-a-dozen lots of grapes--twelve boxes--which would take quite a while, and the technician who knew the varieties, could pick them while we were answering the grower's questions. And in that way we established very favorable relations between the industry people and our Department.

Teiser: You also disseminated information as you gathered it.

Winkler: Yes. They'd ask us, and we'd discuss the results, and what-not.

Teiser: Well, that was a very constructive way to operate.

Winkler: Yes. You might say we had to do it. But we were glad to do so.

Teiser: About how many growers did you work with?

Winkler: Oh, gosh! I don't remember. There must have been between 50 and 100. You see, we collected grapes all the way from Escondido to Ukiah. I don't think we got north of Ukiah at that time, and we didn't get any south of Escondido. There were two growers down there. Borra's Winery and--yes, we got some from ten or fifteen miles beyond--E. Ferrara.

Teiser: Guasti and in through there?

Winkler: Yes, we collected grapes from Guasti. Of course there we were dealing with the vineyard manager, Fred Mazzoni.

We collected grapes from Lanza at Ukiah. That's where we first met Lanza. And he planted several varieties for us. Where we couldn't find the varieties we wanted in a given area, we established variety collections with growers. Lanza had a small one. L. K. Marshall at Lodi had thirty different varieties, about forty vines each. And there were others.

Teiser: You provided them with vines?

Winkler: We provided them with cuttings or rootings, I forget which. And they'd plant them with the understanding that we could collect the amount of fruit that we needed. Lanza had a collection up at Ukiah, and another down at Delano. He still has five or six different varieties of Muscat down there.

Teiser: That came from here?

Winkler: Yes.

Teiser: Lanza has always been interested in varieties, hasn't he?

Winkler: Yes. He's one of the progressive men in the industry and a very good cooperater. Of course, that partner of his is a most interesting person, [Harry] Baccigaluppi. They don't come any nicer than he.

RESEARCH ON PRUNING AND THINNING

Teiser: Let me go back to your research on pruning. When was that started?

Winkler: When I landed at Davis.

Teiser: And so this was going along at the same time as your research on the regions?

Winkler: Yes. We had the pruning work, the SO₂ work, and dove-tailed in with that we had maturity studies of table grapes.

Teiser: Research on pruning is really a longer-term sort of thing?

Winkler: It is. I started that in '21 and I gave my first report on it in '26.

Teiser: Did the techniques of pruning require changing after Repeal?

Winkler: As I said before, they didn't gave any scientific approaches, so we went at this thing with the idea that leaf surface was involved, since most of the products--sugars and acid, et cetera--of the vine come from the leaves. So we set out to determine the effect of pruning on vine growth, the effect of pruning on crop, and the effect of crop on vine growth. Those were the three lines of approach that we made. And we proceeded by having vines that weren't pruned at all, alongside of those vines that were normally pruned--that is, according to the practice for the variety at that time. And then we had another series: severe pruned. The normally pruned vines, the ones we had in the plot, were spur-pruned. We had Muscat, Black Monukka and Alicante Bouschet. And all three of them were normally spur-pruned, so we'd leave two or three bud spurs. And then for the severe pruning we cut those to base buds. And, of course, the non-pruned, they weren't pruned at all. They were just supported on wires. One series had no crop. In another series we had vines with part crop, and in still another all the potential crop.

The grape vine is one of the best horticultural plants to work with. You see, the cluster primordia is formed up to the

*See also pp. 82 and 85 for additional comments on work with growers.



Short Course in Viticulture, Old Putah Creek Vineyard south of First Street in the city of Davis, c. 1915.



Viticulture Short Course, c. 1918. Left to right: F. Flossfeder, W.V. Cruess, Moseley, and Meine.



Dehydrating grapes at the University Farm, Davis, about 1919. Left to right: Williams (an Australian), Cutler, F. Flossfeder and others.

Winkler: initial for the individual flowers in the previous year, but the flowers are not formed until after the vine leafs out. So we could go in and pinch the flower-clusters off before the vine spent any energy in developing these flowers. We'd just take the unwanted flower-cluster off. We thought we were relieving the vine of as much expenditure of energy as we could. And we found that the severely pruned vines, which had practically no crop, and the non-pruned vines, which carried a tremendous crop, made about the same growth. That is, their growth was reduced about 35 or 37% respectively--I'm sure you're not interested in figures.

Teiser: I am, yes.

Winkler: But the reduction was about the same. The severely pruned vines probably carried, let's say, in the neighborhood of ten pounds of fruit and the vines that weren't pruned--carrying all the potential crop--produced fifty pounds of fruit. And then from that we got the effect of pruning on capacity of vine for production--any pruning you do reduces the potential ability to produce.

Let's go back just a little bit. There was an idea prevalent in industry that if you wanted to increase the vigor of a vine or the capacity of a vine, prune it severely. Well, they didn't realize that in doing that they were restricting the vine's capacity by pruning alone. Of course, they took most of the crop off, and in that way relieved it of the depressing effect of crop. But the real way to increase the capacity of a vine is to prune it less severely and remove crop by thinning. So that brings us around to thinning.

You can't prune vines longer and leave more buds and not get into difficulty with over-production, because as you put on more buds you put on more fruit. You increase crop faster than you increase leaf surface. So that led us to thinning. We realized then that we had to do thinning if we were going to utilize the benefits of less severe pruning.

But the information on the effect of pruning alone, without thinning, increased the crop in Napa Valley a half-a-ton per acre.

Teiser: It did? My word!

Winkler: Yes. The farm adviser picked that up, and he told them to leave more wood--not too much wood. They were pruning too short (too severely), so they could leave more wood and still have normal maturing. That was one of the immediate benefits.

And then we realized we could leave still more wood and probably get an improvement in quality if we'd accompany it with

Winkler: thinning. Well, not all varieties respond the same to thinning because of the way they set their fruit. Some varieties, like Muscat of Alexandria, tend to set straggly clusters; others like Malaga set almost perfect clusters; and those like Tokay set clusters which are too tight. The latter become too compact for packing, and the berries push each other off the stem and you get bunch rot.

That led us to the development of three different types of thinning: Flower-cluster thinning for the varieties that don't set perfect clusters, like Muscat of Alexandria. For that, then, we used cane pruning. We limited crop by pruning to make thinning economical, and then by taking flower-clusters off when the shoots were 6 to 12 inches long--the flower-clusters are up at the top; you can just pinch them off.

We obtained practically perfect clusters of Muscat. If you've been looking through my publications, there's one picture appears about ten times! (laughter) I used that over and over. It shows the relation of number of leaves to flower-clusters on berry set.

Teiser: Did the growers immediately respond to this?

Winkler: Oh, they're slow on the uptake.

And then we obtained favorable results where we had clusters that tended to be too tight--Tokay in Lodi is a good example of that. Mr. Ray Van Buskirk, a progressive grower there--he can ask more questions than you, and they were much more difficult to answer. Anyhow, we had plots in each of three of his different vineyards. There we did berry-thinning. What we call berry-thinning is nothing like what they call berry-thinning in the table grapes of Europe. They cut out individual berries, while we just went up into the cluster and cut the rachis, the main stem of the cluster, and left three or four or five or so branches at the base of the cluster. It's the lower third, or lower two-thirds of the cluster that usually tends to become too tight. The upper branches can spread out. And he demonstrated to the other growers down there that his grapes brought more money than theirs. That served as an incentive. So there has been considerable thinning going on by the people in that area who are strictly table-grape growers.

Teiser: When did it start?

Winkler: That started about '25.

Teiser: The handling of table grapes and wine grapes is quite different?

Winkler: Oh, yes, it's different. [With] table grapes, your quality of appearance is a principal factor in selling. Our American public buys with their eyes.

Teiser: So you had to do two separate series of studies for wine grapes and table grapes?

Winkler: We've never thinned wine grapes. The crops of raisin grapes and wine grapes have always been controlled in California by pruning. But with these grapes at present prices they could certainly afford to thin.

Teiser: Does it take a trained man to thin?

Winkler: No. Not especially trained individuals. There are a lot of laborers that wouldn't be very effective as thinners. I should have stated, after we discussed the pruning and the results, that pruning vines, like a lot of other operations, is influenced more by economics than it is by the physiological response of the plant. That's true in grapes, and that's what's been a factor in raisins and wine grapes--that is, the return on the cost of thinning wasn't sufficient to justify it. But with wine grapes at the prices they are now bringing, they could institute some thinning, leave enough wood every year to have a full crop, and then in those years when they have an unusually good set, they could go in and do some thinning to prevent over-production.*

That leads to another thing, which is just a minor matter. But people used to think that a shoot that didn't have a cluster on it was a parasite on the vine. That the leaves of the shoot that didn't have fruit didn't serve any purpose. They didn't realize that the food materials in the vine move freely. I did some work on this. We took a cane of Thompson Seedless, say three feet long, and left a cluster on a shoot out at the end with one leaf, and then took all the leaves off the other shoots of that cane, so that the other parts of the vine had to nourish this cluster out here. And then we reversed it and put the cluster at the base of the cane and had the leaves out at the end, with a girdle below the cluster. They developed just as well as if they had leaves adjacent on the same shoot. And then we took head-trained vines, where we had long arms, and we'd leave the cluster at the end of the arm with one leaf--had to leave one leaf to keep it from withering--and the leaves over on the other arm, and it was nourished as well as the one by the leaves.

Teiser: Why, isn't that interesting!

Winkler: As a demonstration, it showed that food materials in the vine are readily available to all parts of that vine.

*For additional description of research on pruning and thinning, see pp. 65-66.

MATURITY STUDIES

Teiser: You were discussing pruning and thinning and maturity studies.

Winkler: They ran parallel, more or less. As early as 1915, the State accepting Balling degree as a means of measuring maturity. And Bioletti came along a little later and recommended seventeen Balling as the minimum. But Balling alone without variety doesn't mean too much, because of the difference in the acidity of the grape. So Balling didn't--well, it wasn't the complete answer. Because in some years it did very well in separating the good grapes from the unpalatable ones; in other years with the same degree Balling they were unpalatable. After I'd been in the Department for a while, Bioletti wanted me to follow up on it and see what we could learn. So we went out in the state and collected samples of fruit. We collected twelve samples of fruit from a grower of a given variety, and tried to get the same variety from five or six of his neighbors so the fruit would be more representative of the area. We brought the sample to Davis and had at least six people taste each one of them and score them from poor to excellent. And then we crushed the samples and analyzed them. To begin with, of course, we made degree Balling, sugar by chemical means, pH and acid determinations. We soon found that there wasn't enough difference between degree Balling and chemical sugar determination to make it worthwhile, and the chemical method wouldn't be adaptable in the field anyhow. And about the same thing happened with pH. We soon decided that the grapes were too highly buffered for pH to mean much in determining a standard. Sometimes it wouldn't change over quite a range of maturity because of the buffering. And that left us sugar and acid. Well, I said sugar--the degree Balling is the soluble solids--and it correlates perfectly with palatability if you have no interference. We found the principal interfering factor to be the acidity. So then we tried to see whether we could establish a correlation between palatability and acidity as determined by straight titration, but we couldn't. There wasn't enough spread in the ripening range in the acidity for us to use it.

So since those were two principal constituents that were concerned in whether the grapes were good or whether they weren't good--we came around to the Balling/acid ratio. And then we found that Balling/acid ratio with a minimum Balling is a very effective method of eliminating poor samples without eliminating good ones, or fair or intermediate samples.

We recommended that to industry. I think my first publication on maturity was back in 1932.* Industry half-way accepted it.

*See Bibliography, p. 127, #22.

Winkler: The early grape sections are afraid that they'll have a cool season which will throw them late, and that will enable a later section to get ahead of them. That's the difficulty from the grower's point of view. The effect of cool and warm seasons comes during the ripening period. We just simply used four weeks prior to picking. If it's warm during that period, that is, for the region, then the grapes at a given degree Balling will taste good, because the acid will be respired or oxidized, and the balance will be okay. On the other hand if it's cold or cool during that ripening period, the acid will remain up, or high, and the grapes will be sour. But by combining the two, you see, to meet a certain Balling/acid ratio--in Thompson Seedless we set it at 25:1. At 18 Balling, the per cent acidity must be no higher than 0.72. If the per cent acidity is lower, the Balling/acid ratio would be higher, and the other way around.

Teiser: You say that industry only half-accepted it?

Winkler: Well, they've accepted the 27-1/2:1 or something like that for Thompson Seedless at 17 Balling.

Teiser: I see, and this is by state standards, is it?

Winkler: Yes. It's incorporated in the standardization law. The Tokay people have also accepted it, but none of the rest of them have. None of them took my recommendations--the growers considered them too tight. But with the recommendations that we made in our publication, we had a very good separation of grapes. What we did, we'd place 17 Balling, minimum, 18 and 19. Well, at 17 Balling with a Balling/acid ratio of 25 to 1, 25% of the fruit was scored poor--it didn't eliminate any good ones. At 18 Balling with the same ratio, about 10% was scored poor, and we eliminated a few samples, but those would be borderline cases, so there wasn't any damage done. But at 19 Balling with the same ratio, we eliminated a sizable percentage of good fruit. Of course growers wouldn't accept that. And we put a minimum Balling on it so as to simplify the operation. That is, if grapes didn't test 17 Balling, you wouldn't make an acid determination, because acid determinations are a little more difficult. It's not a field operation. You can take degree Balling in the field.

Teiser: Not all growers are set up with any kind of sophisticated equipment, are they?

Winkler: No, they're not. But they've got to do some of this, because they have to meet standards. They have to meet degree Balling standards, and if they don't their grapes are turned back. The agricultural commissioners take 10% of the fruit in a box, crush it and run a Balling test on it. There are agricultural commissioners in each county. They are a law enforcement agency, and

Winkler: they are the ones that enforce the legal standards.

Teiser: And if they used a Balling/acid ratio, then they'd have to make further tests.

Winkler: They'd have to make the acid [test] too. With that information on the table grapes--well, it's been carried on: Dr. [Klayton E.] Nelson has been working on this in connection with his harvesting, packing, and transportation work. He joined the department about 1950, or somewhere along in there. In that connection, he's elaborated on it, refined it. For instance, we just let them take berries from the cluster. They took three or four berries and crushed them in their mouth and got the reaction. They didn't have to eat them. But he's carried the tasting one step further and picked the berries off and suspended them in a sugar solution of a given degree Balling. All of the berries that sink are over the given Balling. Those that float are of a lower Balling. Thus, he segregated them into 17, 18, 19 and 20, and so on. I think he even segregated them into half-degree Balling. And then all the berries in a given sample would have the same degree Balling. So a person wouldn't have to taste so many.

Our work was open to criticism because the grapes are not uniformly ripe in all parts of the cluster--the ones at the base of the cluster are riper than those at the tip in practically every instance. So his work is a real refinement. His work still supports the Balling/acid ratio as the better means of measuring maturity.

Teiser: Do you think there is something to industry's point of view?

Winkler: I can see their point of view. Let's illustrate it: let's take Fresno and Arvin, which is in the lower end of the San Joaquin Valley, and which comes on a week or two before Fresno. And suppose Arvin is cold during the ripening period. They couldn't make the Balling/acid ratio even though they had 18-degree Balling. And Fresno, if it were hot that year they could make it. So Fresno might get out ahead of Arvin and get the benefit of the higher price, because they come on earlier. That's the grower's point of view.

And there's something to it from a commercial point of view, but still it doesn't negate the value of the Balling/acid ratio. The ratio's still the best instrument or means we have of saying, "Well, this grape's going to be good to eat and that one isn't going to be good to eat." Of course, the final test is eating them. (laughter)*

*For additional comments on quality standards and consumer protection, see pp. 82-84.

Teiser: Did you do some color studies?

Winkler: No. I let Amerine take those. I did this, which is a minor thing that might be of a little interest. I took black grapes and grafted them onto white vines and white grapes and grafted them onto colored grapes. I took a Black Muscat and put it on an Olivette blanche, which is a rather tasteless white grape--it doesn't have much flavor. We grafted these before bloom, and just as soon as the berries set, we took all of the leaves of the parent of the cluster off, so we'd have a cluster of Black Muscats on an Olivette blanche vine without any Black Muscat leaves. And we had the reverse, with an Olivette cluster on a Black Muscat.

What we demonstrated was that the precursors of the color and flavor are manufactured in the leaves, but the flavors and colors are produced in the berry--that is, they are synthesized in the berry, not in the leaves. And of course the Black Muscat that we had on an Olivette vine had typical Black Muscat color and flavor, and the Olivette clusters on the Black Muscat vine were neutral in flavor and white. That's the only work that I'd say I did on color. I'd cooperate with Amerine; I made a lot of determinations of wines, but I let him take that.

VINEYARD YIELDS AND OVERCROPPING

Teiser: You did some work on overcropping, didn't you?

Winkler: Yes.

Teiser: That's fairly recent, is it?

Winkler: World War II was the instigator of it.

Teiser: Why? What was the--

Winkler: Well, they got good to high prices for anything that looked like a grape. After World War II, you know, the prices of everything went up, but the prices of grapes didn't. So the only out the grower could see to meet his costs was to produce more per acre, more per unit acre. But we didn't agree with that when it meant to overcropping. Again I'll have to give you some figures.

We took the average crop in the Fresno area from '36 to '40--I don't know how many tons we had that were harvested. They were normal crop years. Then in '46, '47 and '48 we took the crops of the same vineyards. Well, in the case of wine grapes we had a 55% increase in production over the earlier period with only a

Winkler: 2.5% increase in acreage. So you see, they couldn't get all of that increase with fertilizers or irrigation because they couldn't increase the leaf surface by 50%. And what they put into those berries depends on the leaf surface. And in the case of raisin grapes we had, if I'm not mistaken, a 36% increase in crop, and about a 6% increase in acreage. Well, when you have a 36% increase in raisin grapes--that means Thompson Seedless, which is 40% of the industry--that was a lot of grapes. In the case of the table grapes it amounts to 2.7 tons per acre increase.

Teiser: How did they achieve it?

Winkler: They left more wood at pruning. They followed my pruning work. (laughter) But they forgot to thin. They had to go fishing, or something like that, when it came time to thin--possibly labor was scarce. And then this continued into the '50s. It was in 1945--one of those years--the vines leafed out and the shoots got about three to six inches long--and the flower-clusters were sticking up above--and they just stood there for weeks. And there wasn't sufficient leaf surface, so most of the berries shattered off. And then, finally the leaves were matured and they produced enough material so that the vine roots started to grow again--then the shoots. By the end of the year they looked normal but the crop was light. The failure to grow was owing to the depletion of the food reserves in the roots. And this went on through into the middle '50s. That is, they'd have a big crop, and then the crop would go down. Then, maybe a year later, it would begin to come up. This went on in about a three-year cycle for about, say, six or eight years. It interrupted the marketing situation drastically. There was a 600,000 gallon fluctuation in the wine production--from one year to the next.

Teiser: My heavens!

Winkler: It was a serious situation. I don't know how much good we did, but we put it on paper for them, so if they wanted to know, they could.

Teiser: Did it stabilize, then?

Winkler: It stabilized to a considerable extent. We don't have the wide fluctuations any more. You have an occasional vineyard where a grower makes a mistake and leaves too much fruit on, but he usually corrects it after one year.

Of course the result of this was that the grapes didn't ripen. In that paper of mine on overcropping, there is a graph that shows that the later they picked the less Balling they had, and one of the economists that was working on the situation, asked, "How come?" He couldn't understand that. I told him, "The vineyards

Winkler: with the least crop were picked first, and then they went to the more heavily loaded ones as the season progressed, and the Balling kept getting lower, because they were more heavily overloaded." Rather unrealistic sort of a situation, because as the season progresses you would expect that the grapes would get riper.

This is a reprint of the paper. Here's the degree Balling. See this is the curve in 1949 when they had a normal crop--let's say a fairly normal crop. And these are the picking dates. And this is the degree Balling. And here's the degree Balling in '47. You see, the later they picked the lower it got. These up here [pointing to the grape] were probably just about normal crop. It was 24 Balling, so that would be a good degree Balling for a light to normal crop. But over here at the end they were down to 18--say 18-1/2.

Teiser: That publication is titled "Effects of Overcropping."

Winkler: Yes. Wait, I can get you the date. No, that probably isn't in here. Wait, I can check that pretty quick too. "Effects of Overcropping," American Journal of Enology, 5:4-12. 1954.

Teiser: I'm looking at my list of the other areas in which you've done research. It's probably not in order. I've noted that you've given papers on phylloxera control and nematode control, and I didn't know if that was your own work.

Winkler: That was Jacob's work, but Jacob passed away and I gave those papers at the National Viticultural Congress in Argentina. No, I've done no work on phylloxera and nematodes. Of course I covered them in my lectures, so I was conversant with what had been done.

Teiser: Supports for vines. That goes into the mechanical harvesting, and that comes up to a more recent time.

Winkler: Yes, I did some work on those supports.*

FROSTED VINES AND PIERCE'S DISEASE

Winkler: We haven't covered Pierce's disease.** We might mention frosted vines, too. There's quite a controversy on that right now, that I didn't know what I was talking about, but I think I did.

*See pp. 39-40.

**See pp. 35-36 and 92-93.

Winkler: This is back right along with that other stuff we've been talking about. In 1933 we had a severe frost, especially down in the Livingston area--that's on beyond Modesto, and this side of Merced. They wanted help so I went down there, and we demonstrated--this was more or less of a demonstration, but we collected results on it. Take Thompson Seedless which is cane-pruned and doesn't have fruitful buds below the fourth node--you can't depend on them--sometimes they produce fruit but usually not. So in that one we recommend that they do nothing, or they could cut the canes back so that their wood for next year would be in a position where it could be useful for canes. If they didn't cut them back, the best growth might be out at the end, and the growth at the head of the vine poor.

And we made recommendations for the other varieties that they had down there. And we followed through and got crop records on it. That's published in American Society of Horticultural Science.^{*} And it was used right along. If only the tips of the shoots were killed, we did nothing, because the clusters were uninjured. If the shoot was killed below the cluster and the green stub was left, we recommended that that be broken out, because if you didn't break it out it would throw lateral shoots, instead of shoots from lateral growing points in the bud from which the frosted shoot came. The lateral growth that wasn't killed would grow, produce axillary shoots that wouldn't produce much if anything. So what we wanted to do was break the stub out and force the lateral growing points in the bud to grow. There are three growing points in the bud, in the grape vine. And in most of the wine grapes, or those varieties that are fruitful with spur-pruning, the second or even the third growing points are fruitful. So if we could force those into growth we'd get fruit. And we did that.

And of course, in the same way, if we broke these others out, we forced some buds that had remained dormant into growth.

Teiser: Why is there a controversy now about it?

Winkler: In 1960 Napa Valley had a frost. They've had them fairly regularly here of late, unfortunately. They broke the shoots out but they didn't get much effect from it. So they jumped to the conclusion that the previous work wasn't sound. So I got into the picture in '62, and I went over and collected samples and analyzed them. But in '60 instead of the shoots being three to six inches long, they were two to two-and-a-half feet. They'd utilized a great deal more of the stored reserves than they would have if they'd been three to six inches long. In other words, it was a late frost.

*See Bibliography, p. 127, #23.

Teiser: I see. The frost came when there was more growth.

Winkler: Yes. Later in the season, and there was more growth. So they didn't get much re-growth out there on the spurs or on the canes. They got a lot of suckers in the head of the vine, and a lot of them were unfruitful. So they said it wasn't behaving right.

Well, fortunately I had collected samples, and we found that in the head of the vine the reserves were still up almost to normal level--say 20% of carbohydrates--whereas in the spurs they were down to, say, 10% or less. So I think I got at the reason as to why we didn't get the same results in '60 as above.

Teiser: What would you do then?

Winkler: If it was very late, I'd try to force the growth back where we wanted it for next year, and not figure on crop. This year the Napa Valley farm adviser didn't do much. Sonoma County's farm adviser told all his people to follow through, so at the end of the year we might get some more results.

Teiser: Do people follow the farm adviser's advice pretty well?

Winkler: You'd be amazed at what control some of these farm advisers have over their growers. I know that in most counties the farm advisers are really very highly respected. The young farm advisers may have a little difficulty. And the job is more difficult now than it was 20 to 30 or 40 years ago, because the growers know so much more now than they did then.

Teiser: There's more to be known.

Winkler: Yes. Well that about takes care of that.

Teiser: What about Pierce's disease?

Winkler: In 1884 and '85 and up into the '90s, the grape industry in Orange County was practically wiped out. They never did find out why. They didn't know anything about viruses then, so they called it "the mysterious vine disease," or the "Anaheim disease." They couldn't replant because of the presence of the disease. Then in 1935 the same disease threatened the industry in the middle of the San Joaquin Valley--say--in Tulare and Fresno Counties. So we had a young graduate student at the time by the name of Bill [W. B.] Hewitt. He's now director at the Fresno Horticultural Station. He took his degree at about that time in plant pathology. He worked on the diseased vines and determined that this was a virus.

Winkler: The work was a three-way cooperative. Plant Pathology identified the cause, and, of course, worked with us in the field, too. Entomology and Parasitology determined the vectors and their habits of living--their life history and the host range--the grasses and what-not that were hosts to the Pierce disease virus, and also hosts to the vectors. Again, I worked on the climatic end of it. And believe it or not, climatically we could say why it occurred. In the years before the Anaheim disease broke out, they had a dry spell for years and years, and then they had two or three times the normal rainfall, and then a year or so later they had their epidemic--epiphytotic outbreak of Pierce's disease.

Teiser: Was there any way found to control it?

Winkler: No. It appears that we must learn to live with it. We know why it happened at that time. And then in '42 to '47 the rainfall dropped down to 6% below normal again, and we had 1 per cent or less of the disease appearing. We all worked on it. That was during World War II. The entomologists were down there, we were down there, and Hewitt and his fellow plant pathologists were down there. In our work we rogued the vineyards twice a year, cutting out all the diseased vine, thinking that would be a means of checking it, but the infection was not coming from the grape vines, it was coming from something else.

Usually you don't have a woody plant and a herbaceous plant subject to the same virus. In this case we had--alfalfa dwarf is caused by the same virus that causes Pierce's disease. So when farmers mowed their alfalfa and dried up the forage there for a short time, the leaf-hoppers moved into adjacent vineyards, and there would be a lot of Pierce-diseased vines in the first row, a little less in the second, and so on 'til it gradually didn't appear any more.

Teiser: Does it make the growers feel better to know why it happens, even if they don't know how to control it?

Winkler: Oh, yes. You take the good growers--they're keeping their Pierce-diseased vines removed, and a new one placed in its place. Naturally, there are others that can't be bothered, but they're below average growers. We haven't had any call for further work on Pierce's disease. It's been explained to them by the pathologists what it is and how we can live with it, and if we have a wet spell they're going to have a flare-up.*

*See also pp. 92-93.

VINEYARD PRACTICES

Teiser: What does it take to be a good grower?

Winkler: Well, I'll tell you. Some of the better growers in the early days--of course we have a lot more educated people in the field now--were engineers or trained viticulturists. They do things, and do them right. But a man of average intelligence with a willingness to keep up with what's going on will make a good viticulturalist. We have lots of viticulturalists who are not highly educated, but they are intelligent people, and they read. The Italians were the slowest to cooperate. After we once got next to them, they were okay.

Teiser: They were the people who brought the most tradition with them, weren't they?

Winkler: Yes. And they were prone to do it like they did it over there. Now, there's resistance to any change, and that was demonstrated in the maturity work and in the pruning and thinning work, too. Some people pick it up, but as an industry, it sometimes takes quite a while.

Well, let's use another illustration. In 1944 we put out the publication on "Composition and Quality of California Musts and Wines." That didn't take hold until in the late '50s.

Teiser: Is that right? I guess I can believe that, but--

Winkler: That's right. They maintained they had too many varieties already. They weren't convinced that what we call varietals were different from the average run-of-the-mill varieties.

Teiser: This publication, "California Wine Grapes, Composition and Quality of their Musts and Wines"--

Winkler: That came out later. It's based on further work. That [earlier] one was the original work, and then when Amerine got back from World War II he duplicated a lot of varieties on which we had limited data and included other varieties that we didn't have in the former one. This was the result of that additional work.

Teiser: I see. This is California Agricultural Experiment Station Bulletin No. 794, published in 1963--but submitted for publication in September 1961. In it, you and Dr. Amerine exercised a lot of judgment about what was a good wine grape and what wasn't. How did that go over? How did people like your saying, "This is not a good wine grape," when it was one they were devoted to?

Winkler: I'd say the majority of them were inclined to follow us. Of course, you have some people that just don't like to go along. Or they've gotten in a rut and they just don't want to get out. A good illustration of that--I was talking to the Napa people about spacing plantings--spacing the vines. We had plots over there. Again a demonstration rather than an investigation, but we kept good records on it. We had them planted all the way from six-by-eight feet to twelve-by-twelve. And there's no difference except in the two extremes. We had a good group of growers, but one fellow said, "I'm going to continue to plant them seven-by-eight --I don't care what you say about it." I said, "Sure. Go ahead. That's your privilege." That's all you can do. But there's not a grower in the Napa Valley that's establishing a vineyard seven-by-seven, unless it's this guy. All of them are planting them eight-by-twelve, or six-by-twelve feet, depending on the vigor of growth of the variety. There may be some of them going in ten-by-ten, but you see eight-by-twelve and ten-by-ten gives you almost the same vine spacing. Ten-by-ten isn't as economical to cultivate.

Teiser: You did research on spacing?

Winkler: Yes. I said it was a demonstration, because we knew what would happen. You see, when we took over our first vineyard in Napa, in '47--

Teiser: What vineyard is that?

Winkler: The University Vineyard.

Teiser: Was it an existing vineyard?

Winkler: Part of it was, and part of it was a prune orchard. We don't know the history. We still have some Sauvignon blanc vines that are over sixty years old. Just about ten of them, I guess. But the rest of it is all for our experimental use.

Napa and the entire coastal region was still planting close, so we put this in as a demonstration, and it's been terminated. It was terminated in '68. You probably don't have that publication. It again came out in the American Journal of Enology. 20:7-15, 1969.*

*See Bibliography, p. 129, #58.

MECHANICAL HARVESTING

Teiser: You worked on supports for vines for mechanical harvesting?

Winkler: Yes. Supports for vines--I mentioned to you this morning that Jacob and Bioletti did a lot of extension work in the early '20s. That's when the basic supports were developed. And then somewhere in the early '50s they developed the sloping-top trellis. That was done by the farm adviser in Tulare County for table grapes. And there've been certain other basic changes. Nowadays they're using a two-story trellis, having the canes on wires below and then fourteen inches above having other wires to keep the shoots upright to give more shade to the fruit. It produces more uniform color. This is for table grapes. This was developed outside the institution, too. The only thing that we've developed that I had anything to do with developing was the horizontal trellis for mechanical harvesting.

Teiser: When did work on that start?

Winkler: Mechanical harvesting started in '54.

Teiser: And did you start your work on it at the same time?

Winkler: Yes, I started my work. I was talking to the American Society of Agricultural Engineers about it. They had an agricultural machinery conference here at Davis, and they asked me to talk to them, and I did. All I told them--we didn't have any concrete ideas--was that the vine was flexible and its fruiting wood could be placed in most any position you wanted to place it. In that regard it's different from a tree. And that led us then--the first approach to mechanical harvesting, then, was to put it on a horizontal trellis with the wires underneath the wooden cross arms. The first prototype of a harvester was built so that the cutting head would ride right up against the wires on that trellis. But our stems weren't long enough. We'd still cut through the basal end of the cluster, that is, the part closest to the cane. So they developed two or three machines along that line. [H. P.] Olmo undertook a breeding program to develop longer stems. But a breeding program's slow, so in the meantime I retired and Olmo took over the mechanical harvesting work for our Department, and they shifted in direction and are using shakers, or slappers, and it's going to work much better than the earlier machines. These newer machines do not require so much summer labor. So you may say my work on mechanical harvesting was the initial idea, but it didn't pan out. But it did emphasize the possibilities. And with

- Winkler: vineyard labor the way it is at the present time, and it's not going to get better, we're going to be mechanical harvesting raisin and wine grapes within the next several years.
- Teiser: Mr. Ernest Gallo was telling me that his company had worked on a harvester and turned it over to the University to go on with.
- Winkler: They were trying a vacuum harvester, and it takes a lot of power. That is, the people in agricultural engineering wouldn't make that approach, because they simply said it would require too much power. Probably it would work if the leaves could be removed.
- Teiser: Too much motive power? To operate the equipment?
- Winkler: Pump power to maintain the vacuum.
- Teiser: I see. I guess they have to try all kinds of approaches before they finally get one.
- Winkler: Oh, yes. As I indicated, we have two--well, we really have three different approaches at the present time. We have the slapper, the horizontal impactor--these are hard plastic thongs that move in and out of the vines--and the vertical impactor, up and down. The development during the next few years is probably going to be more on the trellis than it is in the machine. That is, placing that fruiting wood so that the machine can get at the fruit. And that's Olmo's problem. And it isn't just Olmo's problem. Everybody in the field that's mechanical harvester-conscious, and most of the big operators are, they're working toward the same thing. Everybody, you see, wants ideas.
- Teiser: I think I've covered the subjects I have, but I'm sure I have not included everything that you have worked on.

VINEYARD AREAS IN CALIFORNIA

- Winkler: There's one other one that you should probably include. In 1959, I guess it was, the Wine Institute--that's when they were getting variety-conscious--wrote the Dean of the college [Dean F. N. Briggs] a letter and told him that they wanted a survey of the potentially favorable areas of the state where premium quality grapes might be grown. I suggested to the dean that he appoint a committee including an economist for tax purposes and a soils

*For additional discussion of mechanization, see pp. 110-111.

Winkler: man for soils and I'd take the climatic end of it for our department. He came back and said, "No, you'll do it." Of course, I knew the temperature regions, so I went and visited these various areas to see what the lay of the land looked like. I didn't go up to Weitchpec. That's north of Eureka. I did go to Alder Point, in Southern Humboldt County, and then in Mendocino County there are several possibilities along the Navarro River. And north of that, a short distance, around the little town of Comptche. Then I came down the coast and crossed from the coast to the interior, from Elk over to Philo, and combed the country. After that I went south of the Bay, and there are certain areas, still, in Santa Clara County, south and east of Gilroy. Santa Cruz may have limited parcels, even though much of it is being taken over by urban development. San Benito County is pretty well taken up. Excellent possibilities are to be found around Santa Maria, but the Air Force base was there, which made it rather unlikely, and there's little to nothing in Southern California. The one big area that's left is Salinas Valley, from Gonzales down to San Lucas or San Ardo, or some place in there.

Several vineyards have gone in along the Navarro River near Booneville, and down by Philo. But the biggest new area of planting is between Soledad and San Lucas. There are about 2,500 to 3,000 acres there. The planting of another 10,000 acres has just been announced.

Teiser: I have somewhere in my files a page from Wines and Vines, a photograph of you and a group of wine men out looking at land in the Mother Lode. I think it was before 1960.

Winkler: Mother Lode is too warm down below, where we have good land. And it's too subject to spring frost up where the temperature is lower. That is, to get into Region III in the Mother Lode country, you have to go up. Nevada City would be a good illustration. They have frost there rather frequently. But again, there are several people that are growing grapes up there. There's not a large acreage, but there's a lot of interest in grapes around Coloma, where gold was discovered. So I don't know just what's going to happen. They must plant something good, and they've got to get up pretty high in order to get the favorable climatic conditions in order to be able to compete with Lodi. You see, Lodi is a heavy producing area. Frost control will be a problem.

Teiser: Would they try to compete? Would they try to produce the same kind of grapes?

Winkler: Well, they shouldn't. But they're planting Zinfandel and Carignane and other similar sorts, and they can't begin to compete with Lodi in tonnage.

- Teiser: Why don't they plant unusual varieties?
- Winkler: Well, we've been trying to encourage them to put in better varieties, Cabernet and Mondeuse, and maybe Petite Sirah, of the reds. It's a little too hot practically everywhere for Chardonnay or White Riesling or Gewürztraminer, of the whites, but they could go with Semillon, Chenin blanc, and Folle blanche.
- Teiser: The other area that comes to my mind is the one that Mr. Philo Biane is developing down in Southern California. It's called Rancho California.
- Winkler: Yes. Over there in--oh, what's the name of that place--near Temecula. I don't know what they're going to do for water. They probably have ample water, but can they compete at its cost? See, they have no local water, at least not enough, and must buy it from the San Diego water system.
- Teiser: I believe the developers put down wells, so that they felt that they had enough water.
- Winkler: I don't know what the rainfall is, since there is no weather station nearby.
- Teiser: It's up a little high.
- Winkler: Yes. It's up a ways, probably around 2,000 to 2,500 feet. I'd say that it'd be in warm Region III or cool Region IV, somewhere in there. And most of the people are absentee owners.
- Teiser: Yes. Mr. Biane said it looks good, but it was too early to tell. But of course he's being crowded out of the Guasti area.
- Winkler: Yes. The smog and urban development are pushing him out. That's all going to be under houses some day. I would think that they could grow grapes at Temecula. Let's not question that. But whether they can get the quality that they will require to compete is a different matter. I don't know enough about the region.

In Southern California you've got to go up in order to find a cool area, excepting when you're right along the coast. Escondido's Region IV, Alpine is Region IV. Of course, Alpine is all covered with houses now. Descanso--a Los Angeles medical doctor had me come down there once. He was interested in developing a vineyard on the slopes above Descanso. That's just east of Alpine. It was probably cool enough, but we had no temperature data, so I cautioned him about spring frosts. If you get up high enough down there, you're going to have spring frost. So Southern California really has nothing below Region IV on what we'd consider fairly level land.

- Teiser: I am told that people are learning how to grow grapes of higher quality in the Central Valley. That is, they are finding that it's capable of growing grapes of higher quality for table wines than used to be thought. What do you think of that theory?
- Winkler: Lodi has produced some quite good wines in the last few years. Our men have been cooperating every year in tasting their more promising wines. They are encouraged. But what the interior valley needs is new varieties that have a greater potential under the conditions that they'll have to be grown.
- Teiser: You mean varieties that don't now exist?
- Winkler: Yes. We have two that would improve the quality of the wines in the interior valley at say Lodi, or Region IV; that's Ruby Cabernet and Emerald Riesling. Both of them are Olmo's seedlings. The Emerald Riesling has produced some very acceptable wines. I don't know if you are familiar with it. "Emerald dry," put out by Paul Masson Company. And we now have a virus-free Ruby Cabernet. (It was grafted on stocks that weren't free, and much of the early planting of Ruby Cabernet was infested with virus.) It should add a great deal to the quality of Lodi wines.
- Teiser: What virus?
- Winkler: Fan leaf and leaf roll, primarily. We have about six or seven different types of viruses in the grape vine. And these happened to get into it in the earliest releases. Our pathologists have it cleaned up now, but the supply [of the virus-free vine] is still limited. It will be available in ample supply in a year or two. Olmo now has two or three other seedlings that show real promise for the interior valleys.
- Teiser: There's considerable effort to plan in the Central Valley grapes that are ordinarily thought of as growing only in the coastal valleys.
- Winkler: They'll be disappointed. Cabernet might get by, but Pinot noir and Chardonnay, White Riesling and Gewürztraminer won't have enough acid. Their aroma and flavors will not be comparable to that produced in cool areas. So they'll have difficulty. Cabernet might do it, but it's the only one of those that I think would show promise. They now have Semillon, Sauvignon blanc, and Chenin blanc.
- Teiser: In the Valley they have Chenin blanc?
- Winkler: In Lodi. That's Region IV.
- Teiser: I thought that was a cool--

Winkler: Oh, it is. It's better adapted in the coastal areas. Region II or Region III would probably be right.

AMERICAN SOCIETY OF ENOLOGISTS

Teiser: May I ask about your presidency of the American Society of Enologists? That's going far for a plant man, isn't it?

Winkler: Well, it depends on what you have worked on. So far I am the only viticulturalist that's been so honored, but in time there will be others. I was the third, or fourth one elected. I was active in the founding of the society. So that's probably how I got in. I feel that I contributed quite a bit to the policies with reference to publication and the like.

Teiser: When did it start?

Winkler: In 1950, and I was president in '53-'54.

Teiser: I see. Does that attract people from the East as much as from California? Is it a truly national--

Winkler: I don't know if the proportion of Eastern wine people would be as high as ours, but we have members from all over the world. We have about 800 members now. For a society that's just twenty years old and in a rather limited field, I think we've done unusually well.

We have an annual meeting, and every year the program gets better, that is, more scientific. For the first fifteen years it was mostly--oh, occasionally there was a paper by one of us in viticulture--but this year we had a full day of papers dealing with viticulture. The journal of the Society now carries Viticulture in its title--the two are inseparable because the vine has to be considered in order to produce the quality you want. That's the reason that enology's with us instead of with food technology. No question about it.

VITICULTURE AND THE WINEMAKER

Teiser: Does this argue for the winemaker to be the grape grower, too? Do you think that's a good combination?

Winkler: They'd make a lot better wine if they were, if they knew varieties. For instance--this illustrates what you're driving at. I was called two weeks ago on the 'phone from Turlock. "Do you remember last year at the Grape Day I asked you to stop by to identify some varieties for me? But, because you were flying, you couldn't stop by. I want you to come down." I said, "Well, you can get one of the younger men in the department to come down and it won't cost you a penny. If you want me to come down you're going to have to pay." (laughter) And he said, "No, they won't take anybody's word for it but yours." And so I went down. He took me to three vineyards. One of them was one variety, and the other two were supposed to be a different variety. They were all the same. Absolutely, no question about it--they were all the same. The one grower was getting ten dollars a ton more than the other two because he was selling it under a different variety name. The name was incorrect and since the people at the winery didn't know varieties he was getting away with it.

And I've been to wineries where they were receiving grapes . . . I asked the man in charge, "What's this variety?"--a twenty-ton load, gondola. "Oh, that's Pinot noir." Of course I didn't say anything. It wasn't even within a mile of Pinot noir--just a very ordinary grape. But you see if things like this were stopped it would improve the quality of the product markedly. And it'd be economical for them, because the above fellow had 300 tons; at ten dollars extra per ton that's \$3,000 that the winery shouldn't have paid. The fellow that I went down to see said, "I don't care whether they give me more for my grapes, but I don't want them to pay that fellow any more than they pay me." That was his angle. He wasn't trying to get a better price for his grapes. He was just trying to get them labeled right. I think that illustrates your point.

The other point was that you can drive up to a winery with a load of grapes and call them most anything, and it'll get by. Not everywhere now. Don't get me wrong. There are many wineries that have people in charge who know varieties, but we need more. So a viticultural training is an excellent combination with enology. They should have it.

Teiser: How about actually the business of growing as well as making wine? It seems to me that's an awfully big job to do two things well, to be a grower and winemaker both.

Winkler: It wasn't more than fifteen or twenty years ago that many people would tell you, "We can't take the risks of growing grapes. It's too hazardous for us." My answer was always this: "You're trying to make a quality wine, and if you don't control the grapes, you can't consistently make a quality wine, because sooner or later somebody's going to buy those grapes out from under you. So if you're going to make a quality wine, you've got to control the grapes."

- Teiser: I suppose this is one of the reasons why now the Gallos* have made contracts with their growers.
- Winkler: Well, you've got to have a contract. That gives you control of the grapes.
- Teiser: I guess that's the next best thing to growing your own.
- Winkler: Yes. And you've got to pay them enough so that somebody else can't step in and buy them out from under you. There's going to be a lot of temptation this year to do that with the premium quality grapes in the Coast counties.
- Teiser: Do you think ideally winemakers should be grape growers?
- Winkler: That'd be the ideal situation. Then they'd have control.
- Teiser: I suppose many of them now grow some and buy some. Isn't that the usual combination?
- Winkler: Yes. At present I don't know any wineries that don't grow some of the grapes they require.

"GENERAL VITICULTURE"

- Teiser: I wanted to ask you, too, about General Viticulture. How long did it take you to prepare that?
- Winkler: I don't know.
- Teiser: When did you start working on it? When did the idea come to you to . . .
- Winkler: Oh, well, we had the idea twenty years before we started working on it. We needed it for our students. You see, there's no publication in English, and our students don't as a rule, read foreign languages.
- Teiser: Is there any publication as comprehensive as that in any language?
- Winkler: Oh, no. (laughter) You're talking to me, now!
- Teiser: I don't know of any, but I . . .
- Winkler: The answer to that would be that it's been translated into Spanish, Greek, Hindi, Russian, and a while back I had a letter from one of my good friends in Germany wanting to translate it into German.

*The E. & J. Gallo Winery.

Teiser: I was going to ask you if there had been many translations. Not Italian?

Winkler: Oh, no. No French, either! (laughter)

Teiser: They think they know too much.

Winkler: I was kind of flattered to have a German ask to translate it. But I've gotten very high compliments on the book, the way it's put together, from both French and Italian viticulturists.

I imagine I started writing about 1950, something like that.

Teiser: And it was published in 1962.

Winkler: Yes. And then I was on the [University] budget committee five years, and if there's anything that takes time, that does. I was chairman two years. And then they wanted me a third year and I told them, "No. I've got a book to finish before I retire." And I just made it. The University kept me on an extra year to get it finished.

Teiser: Has it gone through new editions?

Winkler: It is now in the fourth reprint. It has been very well received. We're preparing a revision of it to appear in 1973.* The University Press is interested.

Teiser: I should think so.

When it's been translated, have there been foreign publishers?

Winkler: Yes. The one is in Mexico. And the Greek--they've made arrangements and paid their fee. I haven't gotten a copy of it. And into Hindi. They requested the privilege of offset printing 2,000 copies, and then they were going to translate it into Hindi. The way has been cleared for several years on that, but I don't know whether they've done it or not. The Russians translated it without our permission.

Teiser: They apparently have the beginning of a wine industry in India.

Winkler: I practically dismissed India. They've called me about that. You see, we have several Hindu students here now, and have had them right along. When we revise it, we will bring their position in the field of viticulture up to date. You see, they're also making wine, now, which is contrary to their religious teachings.

*See also p. 94.

Teiser: Yes, I think I was reading a dispatch in one of the British papers about it.

You initiated some scholarships for . . .

Winkler: Just one. When I retired, a member of the Department, I think it was Dr. [Albert D.] Webb, suggested that we solicit funds for a student loan fund. And I said, "If you'll solicit the funds, I'll match them." So we now have an A. J. Winkler scholarship. It yields about \$800 a year, depending upon the interest rates. It's up right now.*

WORKING WITH GROWERS SINCE 1962

Teiser: You said that since your retirement in 1962 you have done some consulting work. Have you done anything of note to discuss?

Winkler: Nothing of great importance. I've been primarily with Almaden [Vineyards]. What we've done there is to up-grade their varieties. We have a mother-vineyard there of virus-free vines now--and only virus-free planting stock is used now.

Teiser: This is not planted on native root stock?

Winkler: It's on its own roots. All of Almaden's new plantings are on their own roots. You see, they were in a clean area. So it seemed safe to have their vines on their own roots. Before we had virus-free stocks in commercial quantities, I marked all of their vines that they were going to use for propagation--I put a nail in the top of the stake by the particular vine to indicate that they were not to take cuttings from that vine because it was diseased. And we did eliminate a lot of the virused vines.

Teiser: Wasn't that the first substantial planting of good quality wine grapes here on their own roots?

Winkler: Yes. On their own roots in the coastal area.

Teiser: Since the phylloxera epidemic?

Winkler: Yes. Wentz Brothers have a large planting of virus-free vines, but they put them on virus-free root stock, because they'd had experience with phylloxera at Livermore so they didn't want to have it happen again. It cost them more money, but they were willing to do it.

Teiser: I think Mr. Ernest Wentz told me that he didn't think that was necessarily going to work for Almaden!

*See also p. 106.

Winkler: Oh, that's the opinion of practically every one of the older growers.

Mr. [Louis A.] Benoist [of Almaden] was bound and determined to grow grapes of good quality, and he was still, I think, in the back of his head, convinced that grapes on their own root made better wine than grapes on phylloxera-resistant stock.

Teiser: Do you think so?

Winkler: No.

Teiser: What's the advantage then?

Winkler: The advantage on their own roots? Getting them into production a year or two earlier. And they'll probably get a little more crop during the first fifteen or so years. And then as they go out, if they do, the loss won't amount to anything, because they'll have reaped the benefit.

Teiser: So it's a calculated risk?

Winkler: Yes. And if phylloxera hits them, it won't take everything at once. It'll go block by block, and they can replant as it goes along. So they'll have that replanting job to do, but they've paid that off in the better yields up to that time.

Teiser: I see.

Winkler: We haven't hit on the production of virus-free vines.

Teiser: May I, just as you talk, take a photograph?

Winkler: Yes. This was another three-way cooperative venture. Professor Hewitt in Pathology, and then later Dr. Goheen in the U.S.D.A., did all the indexing--that is, to get vines that were not virus-free out of the picture. They check them by indexing. They take wood from the vine that they want and put it onto a vine which is a good indicator of the virus, and if it doesn't show it, then they feel reasonably certain that the one that they took the wood from is free.

And we have plantings now that consist of virus-free vines, and that's where Wente got their start from. Anybody else can get his proportionate share from this mother vineyard. Of course, they have to pay for them, but the cost isn't prohibitive. That was initiated as a cooperative project. Viticulture, through the Wine Institute, furnished the insect-proof house, and in the beginning we furnished land--we were pushing the project, and

Winkler: that's probably the extent to which we could be involved. I was still chairman of the department. I didn't do any actual work in it, but I felt it should be indicated that it was a cooperative project. Viticulture, Plant Pathology and the state nursery service--State Department of Agriculture.

I think you've covered everything.

WINE MEN

Teiser: We haven't covered your general recollections of the industry. One of the things that this series is, I hope, going to correct is the lack of information on the wine industry during Prohibition and the early years after Repeal. Few records were kept and there was a good deal of chaos.

You mentioned Mr. Lanza, and are there other people in the industry whom you recall?

Winkler: We mentioned Marshall this morning.

Teiser: Yes. Marshall, you mentioned, took some vines to plant experimentally. Can you characterize him?

Winkler: Yes. I wrote an obituary in Wines and Vines about him. He passed away in September 1957.*

Teiser: I always hear his death was lamented very much in the industry.

Winkler: Yes. Marshall was probably one of the best of our supporters. Of course, there were others: The Wentes, Herman and Ernest, John Daniel, H. O. Lanza, L. M. and L. P. Martini, P. Biane, H. Baccigaluppi, F. West, M. Filice, Carl Bundschu, F. Cribari, Georges de Latour, H. L. Rixford, A. R. Morrow, E. Rossi, Joe Concannon, K. Arakelian, et cetera. Have you run across the name Mirassou?

Teiser: Mirassou? Yes.

Winkler: They are the ones that were the instigators of the first plantings in the Salinas Valley.

Teiser: Oh, are they? I didn't know that.

*The article appeared in the December 1957 issue.

Winkler: Yes. So that would give them a little justification for mention.

Teiser: Are there any individuals in the industry who have worked more than they might have for the industry as a whole in the field of viticulture?

Winkler: The people that I would mention would be L. K. Marshall, John Daniel, Herman and Ernest Wente, A. R. Morrow, H. O. Lanza, and Harry Baccigaluppi. They were outstanding in their effort to improve quality of wine. Marshall was at Lodi, and Daniel over at Rutherford, the Wentes down in Livermore, Lanza and Baccigaluppi at Ukiah and Delano, and A. R. Morrow in San Francisco. I can't think off-hand of anyone else who would measure up to that.

Teiser: Some of those were very active in the Wine Institute, Mr. Daniel and Mr. Herman Wente . . .

Winkler: And Marshall. They were all three pillars in the Wine Institute. And I was just trying to think of some others that would be rated up along with them.

Teiser: Any of the big growers who have contributed, you feel?

Winkler: Gallos have contributed tremendously in the improvement of the quality of their product, but they're still a mass-producer. Don't get me wrong--the Gallos have done a tremendous lot of work in the improvement of the wine industry, in California.

Teiser: I suppose you have to have mass-production, don't you, as part of an industry? You can't have the whole industry on . . .

Winkler: We couldn't supply enough grapes. That is, I'm afraid we couldn't supply enough of the low-yielding, premium quality varieties to build an industry. That is, the cost of a bottle of wine would be too nearly the same as the cost of the meal. There must be an abundance of cheap standard wine to introduce people to the use of wine as an adjunct to a meal. That's one of the reasons that we haven't built up greater use of wine than the Europeans, because the vin ordinaire over there is very cheap, and we don't have any of that. We have standard wine, which is on a different level to a vin ordinaire.

Teiser: Better, is it?

Winkler: Oh, yes. We won't find a spoiled bottle of wine in California; at least I haven't found one in years and years.

Teiser: France is now doing something about some of its vin ordinaire. . .

Winkler: Oh, yes. You'd expect that they are applying technology. They have some very capable young men coming on. They're not so young any more; they're approaching middle-age--one in Bordeaux, one over at Montpellier, and one up in Colmar.

Teiser: Do we attract any French people now?

Winkler: We've had a few French students, relatively few. We get the South Africans, the Australians, South Americans, the Egyptians, and except for a few Germans none from the old wine countries of Europe. They still figure that they are better than we are. The respect for our work by the latter, however, is growing.

A. J. Winkler

Part Two

Interview Conducted by
Joann L. Larkey



Professor F.T. Bioletti
(1865-1939)



Albert J. Winkler
1935

FARM BOY TO DOCTOR OF PHILOSOPHY

[Dates of interviews: September 21, 1971 and March 17, 1972]

Larkey: Dr. Winkler, you have previously spoken with Ruth Teiser in an interview about your scientific studies in the field of viticulture and enology as they related to the wine industry.

Winkler: That's right.

Larkey: And we'll be speaking further about your long association with the Davis campus of the University of California. It might be an understatement to say that you have witnessed more than a few changes in the fifty years since you first came to Davis, but let's go back a little bit and talk about your early life and education.

What would you say were some of the turning points in the life of the Texas farm boy who became a professor at the University of California?

Winkler: Well, the first turning point was that I was encouraged by one of our supervisors of Bell County to go to a boarding high school. I had mostly decided to remain on the farm, but this gentleman encouraged me to go away to boarding school. We didn't have any high school within commuting distance.

Larkey: Do you recall the man's name?

Winkler: It was a Mr. Duncan. He was a very good friend of the family's.

Larkey: Did you have brothers and sisters who also went away to school?

Winkler: Oh yes, I was the youngest in a family of ten, eight boys and two girls, and all excepting one of the family went to this boarding high school at Brenham, Texas, which was called Blinn Memorial College, but it was at high school level. And from there five of us went on to college and were college graduates. The others went into one or another phase of agricultural production, or into business.

Larkey: Did they all attend the University of Texas?

Winkler: No, two of my brothers were Texas A&M graduates, and three of us went to the University of Texas. My sisters didn't go to the university. They were high school graduates.

While at the University of Texas my major was in botany, primarily plant physiology. During the last two years I was an assistant in botany in the plant physiology lab, having the stipend of twenty-five cents an hour.

Larkey: That was remarkable wasn't it? I don't imagine you could live on that, could you?

Winkler: No. My folks helped pay the way through the university for all of us. Of course, it didn't take as much in those days as it does now.

Larkey: No, I'm sure, but with ten children to educate, it must have been a considerable expense.

Had either of your parents received advanced education in Germany?

Winkler: No, neither of them went further than secondary school. My father was a typical self-made man. He didn't have too much formal education but he did a lot of reading.

Larkey: What were your mother and father's names and places of birth?

Winkler: My father, Charles August Winkler, was from near Dresden, that's now behind the Iron Curtain. My mother's name was Katherine Huber. She was from Oberlingingen, near Stuttgart.

Larkey: Have you ever visited these cities?

Winkler: Oh yes. I've been to Oberlingingen, but I didn't find any relatives or anyone who remembered the family.

Larkey: Were your parents married in Germany?

Winkler: No, they were married in this country. My father and his family left Germany so that he wouldn't be drafted for military service. One of his brothers came ahead three years earlier so that he would get by without being drafted into the German army, and then the entire family came in 1859.

Larkey: I understand from speaking with Mrs. Winkler that the Winkler homestead in Texas is still owned by members of the family.



2nd Lt. A.J. Winkler, U.S. Army
Camp Custer, Michigan, 1919



Charles August Winkler Family, 1896. Winkler Homestead, near The Grove, Texas. Front row, left to right: Auntie (sister of Mrs. Winkler), Otto August, John Henry (behind), Mrs. Katherine Huber Winkler, holding Albert Julius, Joseph Frederick, Charles August and Louise Katherine. Back row, left to right: Herman August, Charles Henry, Andrew, Ernest William and Anna Marie.

- Winkler: Yes, the original holding was in my sister's name until about five or six years ago and now it's owned by two nephews--still Winklers.
- Larkey: The old house is still there?
- Winkler: Yes, but it's not a livable place anymore. It was built in 1890, four years before I was born.
- Larkey: One of your family photographs shows you, the youngest of the ten children, as a small child seated on your mother's lap.
- Winkler: Oh yes, I wasn't being disturbed by the photographer. I believe I was sleeping. [Laughter]*
- Larkey: You studied at the University of Texas from 1914 to 1917. Do you recall any of your professors who particularly influenced you to go on and take graduate work, or was that your own decision?
- Winkler: It may have been some of both. The fact that I was good enough to work as an assistant in plant physiology was a factor, and, of course, the plant physiology professor thought I was a good student, so he encouraged it. Also, I had two brothers who had gone on in graduate work, so that may have had some influence.
- Larkey: Did any of your brothers become professors?
- Winkler: Yes, one of them, Charles, was a professor of agricultural education at the Texas A&M, and my oldest brother, William, was the librarian for the State of Texas and later for the University of Texas, from 1905 to 1946.
- Larkey: So you decided to take your master's degree at the University of Missouri. Was this because of the curriculum there, or did you feel you needed a change of location?
- Winkler: They were well thought of at that time, and the head of the department of horticulture was quite an outstanding man. He later came to the University of California and headed up the Department of Pomology.
- Larkey: Do you remember his name?
- Winkler: Professor J. C. Whitten. It was partly on his account, and then, of course, I obtained a fellowship at the University of Missouri. So, the prominent man and the fact that I obtained a fellowship caused me to go to Missouri.

* See photograph following p. 2.

Larkey: Did you work under this professor?

Winkler: Yes, I worked under Professor Whitten.

Larkey: What was the subject of your master's thesis?

Winkler: It was "Statistical determination of the response of apple trees to cultural methods." I had worked with apple trees but I didn't know anything about statistics. Statistics weren't as important in those days. They are now.

Larkey: So you became a mathematician for awhile.

Winkler: Yes.

Larkey: Well, that was an interesting sideline I'm sure. I was particularly anxious to ask what motivated you to come way out West after completion of your master's degree?

Winkler: Professor Whitten moved to California while I was in the army.

Larkey: You were drafted into military service during World War I?

Winkler: Yes. I went into the service before my year in Missouri was up, but they were good enough to grant my degree anyway. And, then, at the end of that year, Professor Whitten moved to California as head of the University of California's Department of Pomology at Berkeley. When I received my discharge from the army in December, 1918, I contacted him. At the time they had an open position, and so he encouraged me to come out. But, before I arrived, the position was filled by an exchange professor from Cornell, so I became a graduate student instead of a staff member, which was fortunate. It was fortunate because I got my degree at that time.

Larkey: What transpired after you arrived in Berkeley and realized that the position you had hoped to occupy had already been filled?

Winkler: When I first came to California--it must have been in February of 1919--I stopped at Professor Whitten's home in Berkeley, and Mrs. Howard of Davis happened to be there. Dr. W. L. Howard also came from Missouri. So the next day I came to Davis with her and another friend--I've forgotten now who that was--and I landed down here someplace, let's say at the University Hotel, and then I remained in Davis during that spring and started to work on a problem of root development in apricots.

Larkey: You mean you spent several months on the Davis campus in 1919, before you began your graduate studies at Berkeley?

Winkler: Yes. And then during that summer I shifted from Davis to Berkeley. So I spent about 3 months at Davis in 1919.

Larkey: And who were you working with at that time?

Winkler: Dr. [Walter L.] Howard, in pomology. And it was through my contact with him that I went to Berkeley to begin my graduate work, that is, he advised me to go ahead and finish up my graduate work before I accepted any position, which was good advice.

Larkey: There was no graduate program at Davis at that time?

Winkler: No, there was no graduate instruction. I could have probably continued with my problem, but it would have been awkward, involving a lot of traveling back and forth, and that wasn't as easily done in those days as it is now, even though we had four or five trains a day in each direction.

Larkey: Did you make your first trip to Davis by train or did you drive?

Winkler: The first time I came to Berkeley it was by train and from there I came to Davis with Mrs. Howard in an automobile. It seemed a long way, the road was crooked and poorly paved.

Larkey: And what were your first impressions of the town of Davis?

Winkler: It was a pretty small place. [Laughter] I think around 1500 people, something like that. And you might say the only modern building we had on the campus was the old classroom building which has since disappeared. It was not well constructed.

Larkey: Yes; I grew up in one of the three Davis homes that were constructed out of bricks from that old classroom building. Could you describe what the town of Davis looked like when you first saw it in the spring of 1919?

Winkler: Davis didn't look like much of a town then. However, there were two banks and two grocery stores. I stayed in a rooming house until June.

Larkey: You evidently made a trip back to Texas before you began your graduate studies at Berkeley in July 1919.

Winkler: Oh yes, that's when I picked up the wife.

Larkey: Mrs. Winkler mentioned that you had gone to school together at Blinn College. Had you planned to be married before your first trip to California?

- Winkler: Yes, we'd known each other since high school. Her name was Viola Lilly Pearl Bueher, but she goes by the name of Pearl. Her father was Reverend William Bueher, a Methodist minister. We were married in Bracken, Texas, about fourteen miles north of San Antonio, on June 12, 1919.
- Larkey: Then you have recently celebrated your Golden Wedding anniversary.
- Winkler: Yes, that was two years ago, in '69.
- Larkey: So you brought a bride with you when you returned to California?
- Winkler: Yes. We went to Yosemite Valley for our wedding trip. We came out on the train, but we walked all over Yosemite. It wasn't congested with automobiles then.
- Larkey: When you eventually arrived in Berkeley, where did you and Mrs. Winkler make your first home?
- Winkler: We had rather nice quarters in an apartment house near the campus.
- Larkey: And how long did it take you to complete your doctorate?
- Winkler: I was at Berkeley two years, 1919-20, and 1920-21.
- Larkey: And your degree was in both pomology and plant physiology.
- Winkler: Yes, my work was again with apples. I studied the internal browning of the Yellow Newton Pippin apple at Watsonville.
- Larkey: So you did a little more sightseeing in California while working down in the Watsonville area during this period?
- Winkler: Yes, I drove a University Model T Ford down to Watsonville to pick up apples and bring them back to Berkeley for use in the study.
- Larkey: What sort of research facilities did they have on the Berkeley campus at that time? Were you in Hilgard Hall?
- Winkler: Yes, I worked in the basement of Hilgard Hall. They had storage facilities at various temperatures. It [internal browning] turned out to be a problem of air pollution. Without considerable ventilation these apples turned brown inside, but with ventilation or with some agent to absorb the esthers that were given off by these apples in storage, they remained sound. The work that proved the nature of the trouble was done in five-gallon cans that we could seal and had inlet and outlet so that air could be forced through for ventilation. We, of course, used

Winkler: different combinations of carbon dioxide, oxygen and nitrogen; and by ventilating the cans we removed the causative agent which was a volatile product that was produced by the apples from this particular region when they were in storage at 32°F. And we also proved that the climatic conditions down in Watsonville were such that the apples grown there were prone to brown in storage. Whereas apples of the same variety which we obtained from the Rogue River Valley in Oregon or from Albemarle County in Virginia would not turn brown under the same storage conditions, because they had developed under different climatic conditions. And we further found that it was the foggy cold years when the apples were more subject to browning than in warm sunny years.

Larkey: Did this study have an effect on the production of apples in the Watsonville area?

Winkler: Yes, we followed that into storage, and our different temperatures indicated that at a higher temperature they didn't brown as readily as at lower temperatures, so the storage temperatures of apples in Watsonville were raised. Apples were stored at near thirty degrees before our work, and now they are stored at 34 to 36°F.

Larkey: Did you publish your findings at this time?

Winkler: Yes, they were published in the Journal of Agricultural Research of the Federal Department of Agriculture. [XXIC(2): 165-184]*

Larkey: A rather interesting project. And, I wanted to ask you about your general impressions of the College of Agriculture at the time you were in Berkeley. How large a college was this?

Winkler: The Berkeley one? Oh, I don't remember too much about the other departments. There were three men in pomology, Professor [J. C.] Whitten, Professor [E. L.] Overholser and Professor [J. P.] Bennett. Overholser was theoretically in charge of my work, but Bennett was the more helpful individual, so most of my contact was with him. I had conversational contact with Professor Whitten, but my study didn't fit into his program. That is, this was a technical problem, and Professor Whitten's training was more general.

Larkey: I see. Were there other graduate students working at that time?

Winkler: Yes, there was [H. E.] Jacob, who came with us [in the viticulture department at Davis] in '21, and there were two others.

* See Bibliography, p. 126, #1.

A NEW VITICULTURIST FACES DAVIS HOUSING PROBLEMS

Larkey: Well, let's talk about getting you up to Davis. When you received your Ph.D. did you know that you wanted to become a member of the faculty, or was that part of your long-range plans at the time?

Winkler: Well, my plan was to stay in professional work, but, you see, I hadn't had any courses in viticulture. However, in the spring of the year when I obtained my doctorate, I had three positions offered to me. One at Washington State, entailed what I thought was a tremendous amount of teaching, and another was in fruit products at Berkeley. The third one was the position at Davis in viticulture. I exercised good judgment and came to Davis.

Larkey: What influenced you as far as coming to Davis was concerned?

Winkler: Well, I chose to work with plants; that is with growing things rather than in processing.

Larkey: Your basic interest in plant physiology was coming out?

Winkler: Yes. I had a better training in plant physiology than I did in chemistry, let's put it that way.

Larkey: Then, in July of 1921, you accepted an appointment with the University of California Agricultural Experiment Station at the University Farm at Davis. What was your official title?

Winkler: I accepted the position as instructor of viticulture, but when the appointment finally came through, it was as associate in viticulture, with a reduction in salary.

Larkey: Do you recall what your beginning salary was?

Winkler: \$2100, not much nowadays.

Larkey: No, it doesn't sound like much now.

At the time you moved to Davis, did you find a place to live readily or was housing a problem?

Winkler: It was difficult. Mrs. Winkler was visiting her family in Texas, and I was supposed to find a place to live. I finally found a place on A Street, which wasn't very desirable, but I paid the rent on that for a couple of months and then Professor [Warren P.] Tufts went to Berkeley for a year of graduate work. So I purchased a certain amount of their furniture and obtained the rental of the house at 405 Third Street. We lived there during the first two or three years we were in Davis.

- Larkey: Did you move several times before you built your own home?
- Winkler: Then we moved to a place in the same block, but around the corner, facing the grammar school, which was owned by the Morlans, and then in '28 we built in College Park.
- Larkey: And you've been there ever since. Well, I think housing was a universal problem for people coming here on the faculty, in those days, particularly. There just weren't enough houses.
- Winkler: I think it's still a problem to find single housing units.
- Larkey: It's surprising. The demand has never been filled. I did want to ask you a little bit about the cost of living. Do you recall what rents were in those days for a house?
- Winkler: No, I don't recall. It wasn't too high, but we probably got no more than what we paid for.
- Larkey: The development of the College Park residential area, located just north of the campus, has a rather unique history. When and how was that project started?
- Winkler: We started it in '23 and were incorporated as the College Park Association in 1924.* We remained incorporated until after World War II. Then, we voluntarily went into the city.
- We had our own water system, that is we bought water from the city of Davis and later on from the University. I don't know what we did about fire protection. Each one of us had an extinguisher.
- Larkey: I seem to recall seeing a fire siren mounted on a pole near the park area so you must have had a volunteer fire department of sorts.
- Winkler: Oh yes, we had that, but I don't think we had any actual pumping equipment, or anything like that.
- Larkey: The University or the city fire departments would probably have come to your aid if needed.
- Winkler: Well, the city was a little lukewarm, but I'm sure they would have. Until we voted ourselves into the city we had no need to call for help, nor since.

* See Bibliography, p. 135, #2.

Larkey: Who were some of the people who first developed College Park? It wasn't a real estate promotion in the usual sense.

Winkler: No, it was a people's promotion. Elmer [H.] Hughes was one of the leaders in it. [Frank J.] Veihmeyer, of course, was in it . . . H. E. Jacob, [Omund] Lilleland, [Wm. M.] Regan, [Arthur H. Hendrickson and H. [Harry] B. Walker. There was a whole group of us.

Larkey: Did the association buy all the land at one time?

Winkler: Yes, we bought the land [20 acres] and sub-divided it ourselves. Forrest [A.] Plant wasn't a member of our group, but he helped, in that he was our attorney. Most of the lots were sold almost immediately, except for a few at the back. [Joseph T.] Rosa was one of the first to build. He built the house at 217 Russell Boulevard. And, Hendrickson was one of the early ones, Walker, Regan . . . Ira Smith who was active in the association, and I forget now whom else. We built out there in 1928.

Larkey: Do you recall who was the contractor for your brick home at 59 College Park?

Winkler: Oh yes, we planned the house ourselves. Then we had the plans drawn up by J. Lyons, who was in the drafting department at the University, and John Jacobson, the long-time superintendent of construction and repair on the campus, supervised the building. Herb Rourke and his brother, Mutt, did the actual building, and the plasterer was a Mr. Reid.

Larkey: Numerous "Oldtimers" in College Park have talked about the way these early property owners pitched in to work on cooperative improvement projects.

Winkler: Yes, we didn't lay sewer lines . . . (we didn't have sewers until we were annexed to the city of Davis in 1945), but we laid water lines. You see, we tied in with the city first, way over there at the city (Central) Park, and we brought the water line up on the north side of Russell Boulevard and then took it on around College Park. That was done by members of the association. Each home had a septic tank.

Larkey: How did you work out such an ambitious work schedule? Were there Saturday work parties?

Winkler: We worked after hours. I guess we worked there many evenings after five o'clock, and, of course, on Saturdays too.

Larkey: Were street and sidewalk improvements also installed with volunteer labor?

Winkler: No, that was done under contract, but later, when we put the street lights in, that was volunteer. We had to punch under the concrete driveways and such. I remember that.

Larkey: Local newspaper accounts of 1923 referred to the proposed College Park development as a "restricted residential" district. What type of restrictions were placed on potential property owners?

Winkler: The restriction in the front part, from about our place to Russell Boulevard, had to be a house valued at \$5,000 or more, and back of that could be \$4,000 or more. That's about the restrictions we had. There was no restriction on the type of home. Most of the houses were individually developed. Of course, some of them drew out their plans and then had some contractor build it.

Larkey: The original deeds had a racial restriction clause. Was there a reason for this, or did the clause ever cause a controversy?

Winkler: There was a clause prohibiting the occupancy of any building on said property by any person or persons other than those of the Caucasian race before January 1, 1950.

Property value was the factor.

Larkey: Was College Park pretty much restricted to University families?

Winkler: No, it wasn't restricted. Most of them were University families. We had a few outsiders. There was the H. Kyle family. They lived down on the corner, west of the south entrance, where the lot is vacant now. There were two or three or four that were non-University people.

Larkey: Is it really true that in 1923 the only tree growing on that 20-acre area was the large oak tree that is now in the John Conrad's back yard?

Winkler: Yes, I think that's right. All the other trees have been planted since then.

Larkey: That's hard to believe. It's such a beautifully landscaped area now.

Winkler: It's good soil, and if trees have water, they grow. We took out an elm in front of our place last month. It was 37 inches in diameter. It was getting so big it was dangerous.

Larkey: Mrs. Winkler is well known in the community for her flower arranging skills. Is gardening a hobby you two share?

- Winkler: Oh yes. She takes care of the flowers and I do the rest.
- Larkey: What about the landscaping of the park area at the south end of College Park's circular drive? Was that an early cooperative project also?
- Winkler: Yes, it was done by our association. I don't recall who drew the plans, but we were all out there planting trees and shrubs and roses. I'd say that we did that in the late 20's.
- Larkey: And your two daughters probably participated in the first Fourth of July Kiddies' Parade, an annual Davis tradition which was originated by the children of College Park in 1935.
- Winkler: Oh yes, they were there with their bicycles.
- Larkey: One of your neighbors, the late UCD Dean of Women, Susan F. Regan, wrote an interesting history of this popular event in 1950.*

Considering the broad scope of your research and Extension work, plus your teaching and administrative duties, I don't imagine you had a great deal of time to devote to civic activities.

- Winkler: No, I didn't. I am a member of the Athens Lodge (No. 228, F. and A. M.) and the Eastern Star (Ionia Chapter, No. 199, O. E. S.). Mrs. Winkler has been very active in Eastern Star, Girl Scouts, Rainbow Girls, the Community Church and other organizations.
- Larkey: And, no doubt, your daughters got you involved in many of their school and community activities.
- Winkler: Oh yes, we attended all the athletic events while the girls were in school. We don't go to many any more.
- Larkey: Both Marjorie and Ethel graduated from elementary and high school in Davis. Did they also go to the University?
- Winkler: Marjorie, who was born January 9, 1922, studied and graduated from the College of the Pacific, at Stockton, in 1948. She married Willis T. Morris and now lives in Sacramento. They have one son, Walter, who attended the Sacramento schools and graduated from Sacramento State College. He is now an electronics technician in communications, U.S. Navy, stationed in London. Marjorie is employed by the State of California in Personnel and her husband is with the Franchise Tax Board.

* See Bibliography, p. 135, #2.

Winkler: Ethel Anne, the youngest girl, was born December 27, 1924. She graduated from the University at Berkeley in 1945, with a major in home **economics**. Well, she would have graduated from Davis . . . She started there . . . but when the war came along they closed down the campus and she went to Berkeley. In 1948 Ethel married Erwin Plocher, a graduate of the Davis campus in Veterinary medicine, who with Dr. H. R. Parker established an animal hospital in Watsonville. He built an extensive practice, especially in large animals, prior to his untimely death in 1967, at the age of 42. Since then Ethel and her four children, Milton, Steven, Ronald and Cristine, have continued to live in Watsonville. Ethel Anne is employed by (H.R.D.) Human Resources Development in Salinas, California.

Larkey: I'm told that two of your grandsons are now students on the Davis campus.

Winkler: Yes, and a third was just accepted for next fall.

Larkey: That's wonderful. The Winkler tradition will be carried on by the third generation.

TEACHING AND RESEARCH AT THE UNIVERSITY FARM

Larkey: Getting back to your work at the University. What were your responsibilities as an associate in viticulture that first year you were at Davis?

Winkler: Well, I took over the project on pruning. Professor [F. T.] Bioletti had two projects that he was anxious to get going on. One of them he followed up on, which was a comparison of clones of muscat that he had selected on the basis of yield at the Kearney Experiment Station [Fresno County]. And the other was a series of vines that had been planted for pruning work on the Davis campus. I took that project over when I first landed at Davis in 1921.

Larkey: Those vines, were they well established?

Winkler: They'd just been planted the year I came, so you might say I took them over from the very beginning. There had been no training done, so we started from one-year-old vines in 1922 and trained them up from there according to the methods of pruning that I wanted to use. It wasn't methods of pruning as much as it was level of pruning, the amount of wood that we left.

Larkey: Were you using new practices that hadn't been used before?

Winkler: Well, we made a study of the effect of pruning on vine growth, the effect of crop on vine growth, and the effect of pruning on vine capacity. You might say that this was the first basic physiological study of vine pruning that had ever been made.

Larkey: This had not been done elsewhere, in Europe?

Winkler: It had not been done elsewhere. They'd made changes in the art of pruning in Europe, but they'd never investigated the physiological effects of pruning. And we were able to show that pruning is quite depressing, but we still continue to prune more or less the same way but with the retention of a few buds. Pruning is governed more by economics than it is by plant physiology, or the physiological responses. It is a matter of economics.

Larkey: It's the man hours required to do it, you mean.

Winkler: Yes, and then with less pruning we found we could get more growth, but the fruiting of the vine increased faster than the increase in leaf surface, so then we went on and developed methods of thinning. And it's the cost of thinning that really prevents industry, excepting the table grape industry, from using thinning as an adjunct to pruning. Wine people could do it now and get a full crop every year, but in those days the price of wine grapes wouldn't justify it. Table grapes would. So they still use thinning in conjunction with pruning in table grapes, especially the Thompson Seedless and Perlette. But wine grapes have not been thinned up to now, although with present prices they could easily afford to thin and level off their crop from year to year.*

Larkey: During these early studies were students involved with this work as part of the teaching program?

Winkler: No, not at all. I had the help of the field men.

Larkey: Did you have a field staff that was trained in viticulture to help with the field work?

Winkler: We had Giovanni Barovetto and John Mytron and later on student help, but those were the two men, who were regularly employed in the early days, from the time I came with the department. Giovanni took two years off and went to Italy and then came back and went with a commercial vineyard, but in two years, after an older staff member resigned, he came back with us. Then, he carried on until World War II, when he retired. But, the man, who was to replace him enlisted in the Army, so Giovanni came back and then retired again in 1945. Dick Tyree has been

*For additional discussion of pruning, see pp. 24-27.

Winkler: our foreman ever since. I think that Baravetto had first come to Davis in 1912. He was in charge of vineyard work.

Larkey: When viticulture classes were first introduced at the University Farm after 1908 there was an emphasis on practical grape growing in the teaching, and less on the academic, or scientific studies. Had that emphasis shifted by 1921?

Winkler: We had four-year (degree) students up here for one semester when I first came. They'd come up from Berkeley for one semester. Then in 1922, four-year degree work was instituted at Davis. I still didn't do teaching until Mr. [Leon O.] Bonnet, who was in charge of all instruction at Davis, resigned in 1925.

Larkey: Approximately how many students would have been enrolled in those classes?

Winkler: I don't remember how many he had when I took over in 1925. I think they had about 12 or 15, and it fluctuated from year to year. One year I had four. I don't know what the reason was: probably depressed industry? And then another year I had 48. That was right after World War II when the G. I.'s came back. I was going to say that those 48 were the best students I ever had, but in that class of four--I gave three A's. They were unusually capable, except for one guy . . . he just wasn't in the class with the other three.

Larkey: Do you recall their names?

Winkler: The one [Ivor] Anderson, is president of a fertilizer company in Stockton. [Paul] Couture is a vineyardist in Modesto and he owns a considerable area of land on the west side in the San Joaquin Valley. Clark Swanson was a farm advisor for years in San Joaquin County. He's a private grower now. And the fourth man, the one that wasn't very sharp, he was from up in the Sacramento Valley. I don't know what's happened to him.

Larkey: Do you recall the name of the first course that you taught?

Winkler: General viticulture. Professor Bonnet, as we called him, resigned in 1925. I don't know why. There was friction between him and Professor Bioletti, but I don't know the basis of the friction. When he resigned, and I took over the teaching of the four-year work, Mr. Jacob handled the practical viticulture, what we call non-degree viticulture.

Larkey: Was Bioletti still on the faculty at this time, but in Berkeley? Did he come up here to teach at all?

- Winkler: He was professor of viticulture and served as chairman of the viticulture department. He came to Davis quite frequently, not to teach, however, but in connection with his clonal selection work, and other research projects that he was carrying on.
- Larkey: How extensive were the vineyards at that time? Were there more than these vines you mentioned that you were using in your pruning studies?
- Winkler: We had somewhere in the neighborhood of 30 acres. A good part of that was for instructional use. And the rest of it was experimental plantings.
- Larkey: This was during the years of Prohibition so you weren't making wine at that time, but had they made it earlier, prior to Prohibition?
- Winkler: No, not at Davis. There was no equipment for wine production at Davis when I came. Wine was made by E. W. Hilgard and assistants, including Bioletti, from 1880 until prohibition.
- No wine had been produced at Davis. Of course, they had Budd Hall at Berkeley, where Professor Hilgard did his work, and I didn't come until Prohibition was in effect, so I don't know what facilities they had.
- Larkey: But there were none left when you got to Berkeley?
- Winkler: Well, I never did go to Budd Hall. I don't know whether or not their wine-making facilities were still there when I came, but we never had any facilities for wine production at Davis that I know of; not until 1935.
- Larkey: So Prohibition really didn't influence the planting particularly, or the research?
- Winkler: No, it didn't influence the plantings because we were using the three principal types of vine training and pruning in our class instruction. Wine varieties were used for head training and spur pruning; table grape varieties for cordon training and spur pruning; and Thompson Seedless for head training and cane pruning. And in our experimental work we used various types and combinations. Of course, we emphasized table and raisin grapes production during that time, but we still had wine grapes in our vineyards. We maintained our variety collection, and it's been expanded over the years. We now have about 2000 varieties.

RECOLLECTIONS: FACULTY, STUDENTS AND CAMPUS LANDMARKS

- Larkey: That's quite an expansion. You were personally acquainted with some of the people that were here earlier. Did you know Professor Hilgard?
- Winkler: He was still living when I came, but I never had the opportunity to meet him. He was a real scientist and did a lot for viticulture, although he was more involved in soils than in grapes. He was responsible for the development of the [research] work in viticulture, especially the work on wine production. He appreciated the fact that the viticulture industry needed help and was primarily responsible, or very heavily involved in the establishment of the Department of Viticulture and Enology, which is the only department in the University that was created by an act of the legislature.
- Larkey: Yes, so I understand. What about such men as Thomas F. Hunt or Frederick C. Flossfeder?
- Winkler: Hunt was dean of the College of Agriculture when I was a graduate student at Berkeley, but he wasn't friendly to graduate students, so none of us ever went to see him. He stayed in his office and we pursued our studies. Of course, my primary course of information was the graduate dean, Professor C. B. Lipman, or his office. I had practically no contact with Dean Hunt.
- Larkey: Was he an able administrator?
- Winkler: He was undoubtedly an able administrator, but didn't quite appreciate the place of graduate students in the development of agriculture. So I didn't learn to know him.
- Larkey: Were you aware of Professor Flossfeder, who I gather was at Davis?
- Winkler: Yes, Professor Flossfeder was on the Davis campus for a number of years. I don't remember when he came. He resigned the year before I came. He was a typical German professor. That is, he was very strict with the students and, of course, they played all sorts of tricks on him, in the way of snitching grapes and that sort of thing.
- Larkey: That hasn't stopped has it?

Winkler: [Laughter] It hasn't stopped altogether, no. But I don't think our students nowadays get the kick out of doing it that they did then because the relation of the staff to students now is on a little different plane. He was undoubtedly well trained and was capable, but very militant.

He was educated at the German School of Agriculture at Geisenheim, their principal viticultural school. He was capable, no question about that, but he didn't quite fit into our American way of doing things. Bonnet was somewhat similar . . . he was a typical Frenchman. I say typical . . . he was what we usually think of as being a typical Frenchman. He was trained at the National School of Agriculture at Montpellier in France. So his training was undoubtedly all right, but he, too, had difficulties dealing with our American students. I think that may have had something to do with his resignation.

Larkey: Did he return to France?

Winkler: No, he stayed in this country. When he resigned, or soon afterwards, he went with the Italian Vineyard Company at Guasti down in Southern California, and he was a consultant, or worked with them, for a number of years. Later he was working as a consultant with some people over in Napa and Sonoma Counties. I don't remember exactly who.

Larkey: Bioletti, how long was he in charge of the viticulture department?

Winkler: Bioletti came with the institution in 1889 as foreman of the cellar under Hilgard and was with the department until he retired in 1935. He was chairman of the department from 1912 on.

Larkey: And you were his successor?

Winkler: Yes, and I overlapped him fifteen years. I thought a lot of Bioletti. He was a very capable individual, one of the best editors that the agricultural college ever had, and probably did more for us youngsters in editing our publications than he did in our work. You see, his training was way back yonder in the 1880's, and our training was in 1915 to 1920. So, there was as much difference in his training and ours as there is between these youngsters that come on now and my training. So the big help that he was to us was in guidance in our publications. And I don't think he was appreciated as much by the college as he should have been.

Larkey: They have named a street after him on the campus. I've noticed a Bioletti Way on recent maps.

Winkler: Yes, and that was nice, but I think he should have had a further recognition. One of Bioletti's weaknesses was that he wasn't too practical. And he didn't get along too well with the industry, at least he didn't get along as well with industry as Jacob and I. It's a personal matter. It's a public relations capability. But that caused industry to forget the man. You rarely hear him mentioned. But he did a lot for the viticultural industry of California.

Larkey: Can you recall some of the other professors at the University Farm when you first came to Davis?

Winkler: Well, there was Dr. [F. M.] Hayes in veterinary medicine, who was a very witty sort of individual. And Al Smith in soils. [F. W.] Allen and [Warren P.] Tufts in pomology. Of course, in animal husbandry there was Gordon H. True and Carroll Howell. Elmer [H.] Hughes came out in 1921; and [Chester L.] Roadhouse over in D. I. [Dairy Industry].

Larkey: At the time you came weren't you the only resident Ph.D. on the Davis campus?

Winkler: Yes, because Dr. Howard was on leave that first year. He was the first . . . I was the only one during 1921-22.

Larkey: 1922 was a landmark year for the Davis campus.

Winkler: Yes. Then we had a grand influx of people with their doctorates: [W. W.] Robbins in botany, [C. S.] Mudge in dairy industry, [C. S.] Bisson in chemistry; and oh, I can't think of all the rest of them. I guess [Tracy I.] Storer came in zoology about that time and so did E. L. Proebsting in pomology. Also, those first men that we mentioned, a good number of them later acquired or earned their Ph.D. degrees. Hughes went to Missouri . . . Tufts went to Wisconsin. They all earned their degrees.

Larkey: A good many of those men served with distinction on the Davis campus for many years.

So, really, 1922 was the turning point as far as instruction at the University Farm was concerned, with more emphasis being placed on the four-year degree program for full-time students.

Winkler: Oh, yes, that was a big turning point in the development of Davis.

Larkey: And I suppose there was an accompanying expansion in the building program at that time. Weren't both the dairy industry and the horticulture buildings constructed in 1922?

Winkler: Yes, you see, we moved into what was horticulture, which stood over in front of where Wellman Hall is now. We moved into that in 1923. Pomology also moved in in 1923. The Ag Engineering [Walker Engineering] building came along about 1927, and the animal science building in 1928. So, 1922 was the beginning of the expansion in the building program as well as the teaching program. That expansion -- with some slow periods-- has continued.

Larkey: You have marked a 1968 map of the Davis campus with the various locations of the viticulture and enology departments' office headquarters and field houses. It seems as though your department should have earned a special traveling prize for all its successive moves.

Winkler: We were nomads alright. We started in this building here, and then we moved to Horticulture, which was just over here in front of Wellman. And from there we were moved to enology during World War II.

Larkey: That building was constructed in 1939, wasn't it?

Winkler: Yes. That's right over here, and then when our men came back from the army, we moved into the north wing of animal science, where zoology was housed for a long time. And from there we moved to Temporary Building Six, which was back of the library, and for some reason with the expansion of staff, we moved back into this building here, where we started [in 1921].

Larkey: Which was soils and irrigation at one time?

Winkler: It was soils and irrigation, It was also chemistry and we moved in when chemistry moved out. And then from that building we finally moved to our present location.

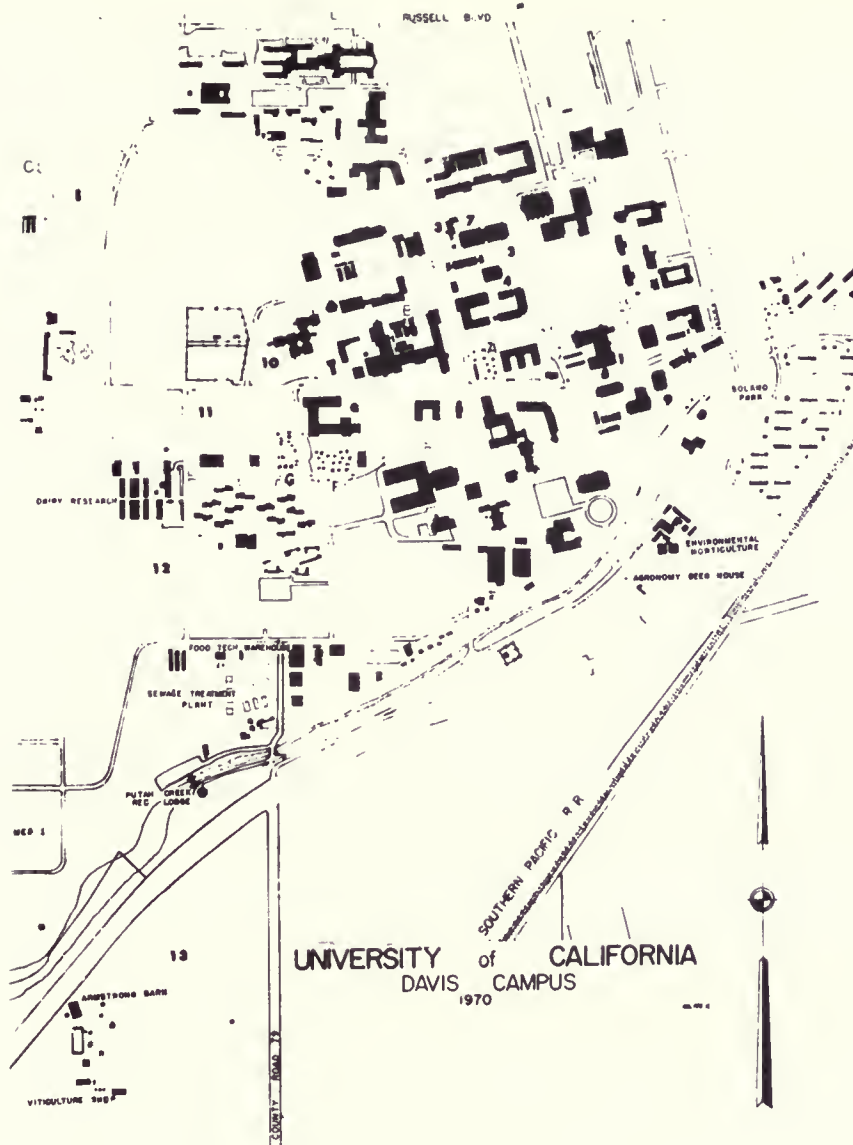
Wickson Hall was designed in about the mid-50's and we moved into it when Amerine was chairman, in 1959.

Larkey: But weren't you still department chairman when the building was being planned?

Winkler: Yes, we started planning that about 1954 or 55.

Larkey: The present building houses two departments, pomology and viticulture and enology. Was it designed specifically to incorporate the existing enology laboratory?

Winkler: Yes, that's still there. We have the west end of Wickson Hall so the two are really tied together with a breezeway.



LOCATIONS OF THE DEPARTMENT OF VITICULTURE AND ENOLOGY

1. Horticulture-Viticulture Building	1919-1923
2. Horticulture Building	1923-1943
3. Enology Building	1943-1945
4. Animal Science Building, No. Wing	1945-1947
5. Temporary Building No. 6	1947-1952
6. Soils and Irrigation (same as No. 1)	1952-1959
7. Wickson Hall, West Wing	1959-

LOCATIONS OF VITICULTURE FIELD HOUSES AND EXPERIMENTAL VINEYARDS

8. Old Putah Creek vineyard
9. Nursery & Grafting House, constructed 1921
10. Experimental Vineyard, planted 1920
11. Vineyard, Dehydrator and first Enology Laboratory
12. Vineyard
13. Present Vineyard & Field Houses on Armstrong Tract, 90 acres acquired in 1940.

Larkey: The whole complex is an impressive facility now, although the enology wing, with its unique wine cellar and its tower structure might seem the more interesting. I've always been intrigued by that tower, which they tell me is the brandy still.

Winkler: Yes, there are two of them in there.

Larkey: Your new building was named in honor of Professor [Edward J.] Wickson, who was a general horticulturist at Berkeley. What were some of his significant contributions to the Davis campus, or to California agriculture in general?

Winkler: He was the second dean of the College of Agriculture. He followed Hilgard and carried over to Hunt. He was a very public relation minded individual, who worked with industry more than in research. He was a disseminator of information, let's put it that way. He wrote the book on California agriculture . . . I forget the exact title . . . and he continued to write a column for the newspaper all the while he was connected with the University.*

Larkey: I believe he wrote for the Pacific Rural Press.

Winkler: That's right. He was editor of the Rural Press.

Larkey: He was also dean of the College of Agriculture from 1907 to 1912, when the University State Farm was initially developed, so he must have had a rather important connection with the Davis campus at that time.

Winkler: Yes, that's probably true.

Larkey: Numerous historical references indicate that vineyards had been planted along both sides of Old Putah Creek as early as the 1860's. There are photographs in the UC Davis archives showing students working with some gnarled vines in a vineyard laying west of the railroad underpass and south of First Street, where Aggie Villa has stood since 1946. I gather that none of these old vines were still growing at the University Farm when you first came to Davis.

Winkler: There were a few, but we didn't use them in our work.

Larkey: Could you describe the experimental vineyards and the field house facilities that have been developed since you joined the faculty in 1921?

* See Bibliography, p. 135, #6 and #7.

Winkler: Well, in 1921 we had a little building right about where the dramatic arts building is now. I think I located that on the map. We were in there until the early 30's.

Then we moved out and took over the agronomy field house on Hutchison Drive. That was close to the dehydrater that was built prior to the coming of Prohibition. They did a lot of work on dehydrating wine grapes. We occupied that building for about fifteen years.*

Larkey: Were vineyards planted adjacent to those early field houses?

Winkler: We had no vineyards near that first building. The vineyards were started where the veterinary medicine building (Haring Hall) stands, and extended out to the road beyond the dog pens.

Then, that vineyard was abandoned. Professor Bioletti thought they had gotten everything out of it that could be gotten. In 1921 the vineyard just this side of truck (vegetable) crops was planted. We had 20 acres in there. And then a little later on, agronomy was giving up the 20 acres between that and the road going north and south, between the new dairy development and the new student housing (Tercero Halls). So we had 40 acres there. That was started even before I came . . . that's where I did my first studies on pruning.

Then, that vineyard was used until we moved over on the Armstrong tract, about twenty years ago.

Larkey: I see that the widening of Interstate 80 is taking out part of those vineyards on the Armstrong tract. It's frightening to see those bulldozers working.

Winkler: Yeah, it doesn't take them long to clean the place out.

Larkey: What became of the old shingled building your department vacated in 1959?

Winkler: That one was burned as a practical exercise for the farm [University] fire department.

Larkey: I believe they have had a volunteer fire department for many years. Do you recall conflagrations that were particularly spectacular?

Winkler: No, I happened to be away when the old creamery building burned down, and beyond that, I don't know of any that were really serious.

* See photographs following p. 24.

Larkey: They've been very fortunate. There are some very good stories of volunteer firemen from the University helping to extinguish fires in the city of Davis.

Winkler: The only other fire that I recall was a fire up in North Hall, but they got that out before it had done much damage.

Larkey: What about some of your former students? You've mentioned some that were from two particular classes. Did you feel that what these students were learning in school had an appreciable effect on the work they did in the grape and wine industry after they graduated?

Winkler: There's no question about that. Most of our, let's say, a majority of our students that came from ranches, went back to those ranches. And they've had a real effect in their communities. They're members of the Farm Bureau or they're members of committees that take care of this, that and the other thing, and we have been at times disappointed that we couldn't encourage some of them to go on in graduate work because they are very capable. But they had places to go back to. They like the way of life. And they have had a real influence in their communities.

And then, a number of our students that didn't come from ranch homes or own the land where they wanted to go back to are in the Extension Service. We have farm advisors in about ten counties that do nothing but work with the grapes, and most of those were trained here.

Larkey: They are an important liaison between the University and the growers.

Winkler: Yes, and the three Extension specialists [A. N.] Kasimatis and Fred Jensen in viticulture and [G. M.] Cooke in enology were all trained here.

Larkey: You mentioned in your interview with Ruth Teiser that changes you were recommending in viticultural practices were sometimes slow to be adopted by the growers, particularly by those who had been in the business for a long period of time and had their own ways, or wouldn't heed your publications.

Winkler: Yes, they go slow. Well, we had one instance, the treatment of grapes with sulphur dioxide to preserve them in transit.* That went over. That's one thing that industry accepted immediately. But there are other things that they are slow in adopting. They eventually get over, but it doesn't create any great excitement. But sulphur dioxide did. Now take another

*See Bibliography, p. 126, #3.

Winkler: example about varietal studies in the production of premium quality wines. We put that publication out in 1944,* and people really didn't get variety conscious until about 1960, or the late fifties. And now everybody wishes they had read it and had planted three or four times the number of acres.

Larkey: I'm sure it's hard to predict what will go and sometimes it must be frustrating for a professor who has done the research not to have his findings accepted right away. Were your former students more receptive to these new ideas when they returned to their family vineyards?

Winkler: Yes, they are receptive to change, hence when they see the benefits to be had they modify their practices.

Larkey: Were there any women students in your early viticulture courses?

Winkler: Oh yes, we had two, way back there in one of my fourth or fifth classes. We called them the Packard twins.

Larkey: They were twins?

Winkler: No, they weren't twins, but they were always together and they drove around in a Packard automobile, which was something in those days. One of them was the sister of John Daniel, who operated Inglenook vineyard for years and years. She, by the way, is raising pedigreed dogs now, and I don't know what happened to the other girl--Miss Martin. They both took viticulture. We've had a sprinkling of girls right down through the years. I can't think of very many names: a Miss G. [Gladys] Shulte was here. She was one of the first to graduate in home economics, but she took our viticulture courses. And there have been other girls.

Larkey: What about today? Are many women training for jobs in the fields of viticulture or enology?

Winkler: The number is still small--probably about 10 per cent, except in Enology 3. Many girls desire to learn about wine and its appreciation.

Larkey: Have class sizes increased drastically in recent years?

Winkler: I used to teach in both the fall and spring semesters. We didn't get over to the quarter system until I quit teaching. In the forties and fifties I had 20 to 25 students [in General Viticulture], while the class has now climbed to over 60.

* See p. 19.

Winkler: The enology courses have picked up as well. Enology 3, which is an orientation course, that's going big, over 500 at present. The grape and wine boom is extending into our classes.

Larkey: And I suspect you've had a few volunteers to help sample the wines in the tasting room?

Winkler: [Laughter] Oh, yes, we could always have plenty of those. It's gotten to the point where there's not so many remarks made about it as there were to begin with. Our students soon learn that tasting is a serious part of the enology courses.

Well, we had student help in making wines every year since we've been here. They do the crushing, and take the temperatures during the fermentation and rack them off--that sort of work is done by students. Only the upper division students participate in tasting. The same is true of graduate students.

The students in enology are no different than the students in animal husbandry. It soon becomes recognized as a regular course and that's it. The glamor stuff and romance soon disappears . . . usually after about the first test. When they have had to apply some of their chemistry, and bacteriology, they forget about the romance and so forth.

PROHIBITION AND THE UNIVERSITY

Larkey: During Prohibition, even though you weren't involved in making wine, was there any local criticism of the department from temperance societies or from people who were pro-Prohibition?

Winkler: Nobody bothered us during Prohibition. We were doing nothing. We kept our skirts clean, you might say, and did nothing with wine during that period. But when Prohibition was repealed, of course, we were forced into wine research as a service to industry. And our purpose in this industry is the same as in any other . . . to cut costs, improve quality and assist the industry. It wasn't too long after Repeal that some people began to object. We carried on the name of viticulture for years after Repeal. And then, in about 1948 we changed it to viticulture and enology. The administration, President Bob Sproul, didn't think that viticulture was obnoxious, and then he finally got around to the point where he said they won't know what enology means anyhow. But there were people who objected.

One religious group wrote President Sproul a letter and said that if they [the University] didn't stop the instruction in enology they'd close the institution down.

- Larkey: I was wondering if, on the local level, there had been any friction? since Davis is a very "dry" town, and has been since shortly after the University Farm was established.
- Winkler: You don't refer to the beginning by saying it was a dry town.
[Laughter]
- Larkey: No, Davisville was anything but that previous to enforcement of the "Three Mile Limit" law of 1911.
- Winkler: Yeah. No, we haven't had any local problems. We've had some visitors that weren't honest with us. They'd come up and talk to us about our work, seemingly agreeing, and then flare up about the idea of teaching wine-making in a tax-supported school.
- Larkey: You spoke earlier about your studies with sulphur dioxide in the mid 1920's as a means of alleviating the difficulty of moving California grapes to Eastern markets.* Haven't these studies also had far-reaching effects on the development of grape storage facilities?
- Winkler: Oh, yes. You see we had no storage facilities at that time [in 1924-25] so we couldn't carry it over into the grape storage, but the federal department [USDA] picked it up and they worked on its application in storage. So, now grapes are harvested, packed and treated with sulphur dioxide. If they are shipped that's the only treatment they receive. But if they go into storage, they are refumigated every seven to ten days. That is, the atmosphere in the storage rooms is replaced with a mixture of air and SO_2 (0.1 per cent SO_2 in air for 20 minutes), and that takes care of any development of grey mold or any other fungus--but grey mold is the principal one--that might have developed since the last treatment.
- Larkey: So now we can enjoy grapes in the grocery store for a much longer period than the brief growing season.
- Winkler: That's the one that went over fast. Grapes are now available every month in the year.

* Pp. 5-7 and 75.

EUROPEAN SABBATICAL: PRELUDE TO ENOLOGICAL RESEARCH AND A
NEW DEPARTMENT AT DAVIS

Larkey: Shortly after the repeal of Prohibition you made a trip to Europe. Could you comment on your experiences abroad?

Winkler: Well, Repeal came in December 1933, and I went to Europe in 1934. I wasn't very enthused about going because I had three or four very interesting projects going at the time . . . the pruning work, the thinning work, standardization, and several smaller projects. So I didn't much want to leave, but Bioletti indicated that I should and explained why, so I went.

I visited a large number of experiment stations . . . 29 federal stations, or state-owned schools, and four or five private schools, in Germany, France, Switzerland, Italy, Algeria (still a province of France at that time).

Larkey: Sabbatical leaves were rather unusual at that point in time.

Winkler: They weren't as frequent as they are now.

Larkey: Were you able to take your family with you?

Winkler: No. It was strictly a business trip, and it wouldn't have worked out anyway because I was moving all the time.

Larkey: It sounds like you covered a good bit of territory.

Winkler: Yes. I had very good liaison with the people I wished to contact. They were very cooperative, and I questioned them about their work. And, of course, they questioned me about ours. So we had very friendly interviews with members of the staffs of the schools and the experiment stations that I visited.*

The visit in Alsace was probably the most profitable because of the change that they had to make in their industry following World War I. While they were with Germany, they were the warmest area and the mass-producing area, and when they went back to France, they couldn't compete with southern France, which was a mass-producing area. So they had to change, and they went through a series of variety testings, which wasn't too different from what we did, except that they did do it on a much smaller scale. They made wine, eight or ten varieties a year, while we made four or five hundred wines each year. They covered Alsace; we covered California from Ukiah in the north to San Diego in the south.

Larkey: After you returned to Davis, didn't you report your European observations to members of California's grape and wine industry?

*See also pp. 10-11, 12.

Winkler: Yes. In 1935, I published short articles on my findings in the trade journals . . . Wine Review, Blue Anchor and Wines and Vines.*

Larkey: Did you also travel throughout California's grape-growing regions between 1922 and 1935?

Winkler: Oh, I was acquainted with most of the areas before Repeal came. In our extension work, that is, we would hold day meetings hither and yon through the state in those days. So I was familiar with the various areas and many growers. And then, when repeal came, we collected grapes all the way from Calpella to Escondido and brought them to Davis and made wine out of them under as uniform conditions as possible.**

Larkey: What were the techniques you used in the first processing of the wine on the Davis campus?

Winkler: Well, we had no equipment, so we stemmed them by rubbing the grape through a wooden grate, and in that way got them crushed and separated from the stems. Then we took over our box and tray storage house out there [on Hutchison Dr.] for a fermentation room.

Larkey: Is that building still standing?

Winkler: No, that's gone. This was the house between the old agronomy [our field house at that time] building and the dehydrator. We moved the boxes and tray out and used that for our fermentation facility. We put a sprinkler system up on the roof to at least reduce the temperature a bit, and then the next year a basement was dug under the south end of the field house. There were two large rooms in that basement, connected with the hallway or breezeway . . . that was our wine cellar.

Larkey: Until 1939, anyway.

Winkler: Yes, we operated under those conditions until 1939. And we made about 500 lots of wine a year during that period.

Larkey: You used the term "we." Which staff and faculty members were actually helping you in this work?

Winkler: Just [Maynard A.] Amerine and myself. And then, in 1936 or '37, we brought Mr. Twight back as an associate in viticulture.

Larkey: Was he on the faculty at Davis for long?

*See Bibliography, p. 130, #7, #8 and #9.

**See also pp. 16, 20, and 22-23.

Winkler: No, he was one of these souls who can't stay put. He came with the University in about 1900. Bioletti was on leave in South Africa and Twilight came in and filled in for him.

And then when Bioletti came back, I think he went to Australia and wrote a book on root stocks. Then later, he came back to the United States and was with the Internal Revenue Service as a gauger. And then after Repeal he dropped out of that and helped build the Muscat Cooperative Winery down at Selma. We hired him from there, and he was with us for about four years.

Larkey: Was this after you were made department chairman?

Winkler: Yes. I'd say he came on in late '36 or '37. We were two years into wine production when we brought him on.

Larkey: After you became department chairman in 1935, who was the first faculty member you personally recruited?

Winkler: We brought Amerine on in July of 1935, because we made wines that year so I know that Amerine was here. And [Harold P.] Olmo was here before. Olmo was really taken on by Bioletti before I became chairman.

Larkey: You had had both of these men in your undergraduate classes at Davis. Did you see their potential as research scientists at that time?

Winkler: They were both excellent students. They had great potential.

We brought Amerine on before he had obtained his doctorate. He was with us a year while he was finishing up his thesis. He received his doctorate in 1936.

Larkey: To make those first lots of wine at Davis, were you using techniques that you learned while you were in Europe in 1934?

Winkler: We used the same techniques in making wines that were being used the world over, you might say, adapting them to California conditions, or our conditions here at Davis. But there was not much modification because of lack of facilities. Now they're fermenting wine at low temperatures and producing a better product, but we had no low temperatures in those days.

Larkey: Not at Davis in the summer time anyway. Did your initial experiments with wine-making have any immediate effect on the industry?

Winkler: Yes, we had visitors, and we would have tastings. Each year we met with the Council of Agriculture, which advised the dean (of the College of Agriculture) and the president (of the University of California) on budget matters. They would come to Davis every year, and a section of that group would meet with us in viticulture and enology. That enabled us to get a little bit more help right off, and, of course, when we went back the next year to collect samples from the same growers we would talk to them about what we were doing and in that way, the information was disseminated right off, you might say. That's where public relations came in . . . ours were very good with the industry.

ACADEMIC RESEARCH AIDS INDUSTRY, PROTECTS CONSUMER

Larkey: You found most growers cooperative?

Winkler: Oh, yes, most of them gave us the grapes. Some of the little people, the small growers didn't, but there again economics came in. We could pay a grower where we knew we could get what we wanted, rather than spend a half a day looking for some one else in that neighborhood that had the same varieties. So, we didn't object to paying a grower. And during that time, Dean Hutchison supported us generously. We operated on a deficit budget for about five years, which would be unheard of now. Of course, he took care of it out of savings from other departments. Some departments, apparently, didn't use all of their money.

Larkey: Was this money chiefly going into the equipment?

Winkler: Equipment, and a small fraction of it went for the purchase of grapes. As a matter of fact, I don't think we purchased more than 10 or 15 per cent of the lots that we used, maybe 25 per cent, but still that wasn't much.*

Larkey: You've spoken extensively about your work with the growers and the wine-makers in California, and you seem to have maintained an excellent working relationship with them. But isn't it also true that occasionally you were called on to be more or less the watchdog as far as quality standards were concerned?

Winkler: I've appeared twice in injunction suits, where somebody was trying to get around the standards that were created by the table grape growers and the State Department of Agriculture. You see, we don't create the standards. We supply the information based on our research findings.

* See also p. 16.

Larkey: The State Department of Agriculture sets the marketing standards?

Winkler: Yes. They may use our information, but the State Department in conjunction with the industry creates the standards. On a number of occasions the established standards have been challenged: on two occasions I've appeared as a witness for the State. On the second suit, when we were coming out of the courtroom, one of the cantankerous fellas in industry, said, "Well, you've beaten me before. It looks like you're going to beat me again." [Laughter]

Larkey: He knew what he was up against.

Winkler: There was no hard feelings.

Larkey: I spoke recently with Dr. Amerine, and he paid you high praise for the uncompromising stand you have continuously taken in advocating the highest standards for quality control, despite occasional opposition from members of the grape and wine industry. How effective is the University's role in the protection of consumer interests?

Winkler: As I've already stated, we may furnish the data on which a standard of quality is based, but we do not establish legal standards. That is a function of the State Department of Agriculture and its representatives, the agricultural commissioner, in the counties. We, of course, may speak before groups of industry regarding quality in their products and means of measuring and maintaining quality. We have nothing to do with enforcement of standards. That, again, is the function of the State Department of Agriculture and its representatives.

We can only advise and stress the need for quality.

One of the things we did for industry was to help them get more nearly out of the varieties what was in them by re-naming bottled wines. Instead of calling them Burgundy, or Claret, we advised them to name them after the variety . . . Pinot Noir and Cabernet Sauvignon and White Riesling and what not . . . in order to tell the public what they were. And in that way, we thought they could get more for their wines than they would by just simply calling them Burgundy or Claret.

Eventually, I can see that we'll be back to Napa Pinot, or Napa Burgundy . . . naming wines on a regional basis. We are going to be forced into that because growers in the interior valleys are planting Cabernet, Pinot and other varieties, and the wines won't be good. They just want the name, you see, and that's going to hurt the Coast people so they're going to have to label "Napa Valley Cabernet," or "Salinas Valley . . ." or "Santa Maria Valley . . ." or whatever they are growing.

- Larkey: And the general public is going to have to become better educated in order to recognize these differences in quality. Californians, in particular, are drinking more wines today. Is the average consumer getting better wines now as a result of new varietal plantings and processing techniques?
- Winkler: Well, probably not better wines, but we've got them in larger quantities so they are getting to the consumer. Unfortunately, the consumer has gotten over-enthusiastic about wines and we don't have enough good varietal grapes to make sufficient good wine to go around. Our wines are not as good right now as they were five or ten years ago because they are being stretched to a degree with ordinary varieties.
- Larkey: They're bound to come up with an answer for that problem too.
- Winkler: Oh yes, we're planting thousands of acres of good grapes each year.
- Larkey: Might this result in problems of over-planting such as happened in the 1870's and again in the 1920's?
- Winkler: It very well could if the industry does not relate the new plantings closely with the increase in sales. This will be difficult, since many of the new acres are in the hands of people who know very little about the grape and wine industries. If it should happen, the grower with poor varieties or good varieties in unfavorable climatic conditions will be the first to suffer.
- Larkey: What about quality control for the raisin and table grape industries?
- Winkler: The basis for this has been developed. My work and that of Professor K. E. Nelson have supplied data on the relation degree Balling and the Balling/acid ratio to palatability or consumer acceptance. Mr. Jacob's work is supported by that of Messrs. C. D. Lynn, P. Baranik, M. W. Miller, and A. N. Kasimatis, who worked in Madera and Fresno counties during the late 1960's. There is a very definite relation of degree Balling at harvest to quality in raisins.
- Larkey: The propagation of rootstock from the University's agricultural experiment stations has been an important factor in the industry's ability to meet consumer demands. How many of these research stations have been directly associated with the Department of Viticulture and Enology?
- Winkler: There were none at the time I came to the department. Since then, there's been no work done at the old Kearney Ranch where earlier experiments were conducted. Professor Bioletti made the clonal selections of Muscats that he propagated out of that vineyard.

Winkler: Now we have 40 acres in the station at Oakville, near Napa, and 40 acres at the Kearney Horticultural Field Station near Reedley, in Fresno County. Those are the only stations where we have plantings that are actually owned by the University.

I was on the committee to locate these stations. The one near Reedley was developed after I retired.

Now, there are some grower cooperative set-ups, like the one at Five Points [Fresno County], where vines are growing in saline soils to determine salt tolerances of varieties. There are fifteen or twenty varieties and probably twenty-five or thirty vines of each.

We have worked with growers as individuals on a cooperative basis. There are a number of rootstock plots on growers' property, and we had varietal collections on growers' property. For instance, L. K. Marshall at Lodi had about 40 varieties in sufficient quantities of each, so that we could get all the grapes that we wanted of any one of them. And there are other people that have variety collections. Where we couldn't find the varieties in a given area, we developed cooperative variety collections with the grower.

Larkey: Wasn't that mutually advantageous?

Winkler: Oh, yes, it was, and it's fortunate for us that the old vineyards were mixed up, so we could go into one of these vineyards that was established back in the 1800's or early 1900's and probably find three or four or more varieties in a single location. So, that enabled us to get right on to our wine work in 1935. Otherwise, if we'd had to develop the varieties in the various areas, we would have been delayed four or five years.*

INTERNATIONAL SIGNIFICANCE OF WORK AT UC DAVIS

Larkey: I'm sure. During this period, when you were beginning to actually produce wine at Davis from these varietal collections, did you have contact with universities in other parts of the U.S. where similar work was being done?

Winkler: There were none. New York is doing a little work now, but at that time we were the only ones. For years we were the only institution giving courses in enology in the United States. Now several state colleges also offer such courses.

*See also pp. 11-12, 22-24.

- Larkey: And what sort of rapport have you developed with universities in other parts of the world--for instance, the ones that you visited in Europe? Have you maintained any reciprocal association?
- Winkler: Oh, correspondence, and we have introduced cuttings through visits to these people, but that's about all. It's too distant, and conditions are so different, that we have developed no actual cooperation with the foreign institutions. However, some of our men take a sabbatical hither and yon with foreign institutions. Each of them has studied at one or more universities in the United States or abroad. That's the principal contact that we have with other institutions here and abroad.
- Larkey: What about students coming from foreign institutions and taking instruction here?
- Winkler: About half of our graduate students are foreigners. About 20 or 25 at the present time. And, of course, some of our earlier ones have gone back to their countries and assumed important positions in their own agricultural set-up. U. X. Davidis is now professor of viticulture at the principal school of agriculture in Athens, Greece. M. Onran is professor of viticulture and horticulture in the school at Ismar, Turkey. E. M. Shemsettin, who worked on grapes--fruit bud differentiation--as a problem for the master's degree here, is now a millionaire in Turkey. R. B. Kant is a consultant on grapes and tree fruits in Australia, and a number of our students from South Africa are occupying responsible positions in their countries.
- Larkey: These contacts, in time, may precipitate a further exchange of ideas I suppose, even though conditions vary.
- Winkler: Oh, yes--I imagine that if you canvass the whole department, you'd find a lot of correspondence. I correspond with people abroad. Some of it's technical and otherwise it's just on a personal basis. We [Mrs. Winkler and I] went to Russia in '68, and I've had exchanges of books and letters with several people that we met behind the Iron Curtain. And the Russians have translated my book--without permission, of course.
- Larkey: That doesn't seem right, but they must appreciate your text. What about some of the projects that have taken you overseas? You talked about your first trip to Europe in 1934. When did you go again?
- Winkler: I didn't get away again until '56--that was a private trip, but I participated in the Virus Conference of the International Office of du Vin, which has headquarters in Paris. This meeting was in the northern part of Italy. We started in Verona, and

Winkler: visited the country around Lake Garda, and then finally ended up over at the experiment station in northeastern Italy at Conegliano. The meetings with vineyard inspections extended over a week. I was not an official member of the meetings, but I participated in the discussions. I also visited with professional men in Switzerland, Austria and Germany.

Larkey: Did you deliver papers?

Winkler: I did not deliver a paper at that meeting, but I did report the work of our pathologists on their discovery of a vector of several grape viruses, which had not been reported in the literature. Bill [Wm. B.] Hewitt in plant pathology and [D. J.] Raskin in nematology, had shown that *Xiphinema index* was a vector of fanleaf. I reported that at the conference, which caused quite a stir.

And then in '52 I went to the International Congress of Viticulture in Argentina, as a guest of the Argentine government. I delivered two papers--one on phylloxera control and the other on nematode control. At that time I also visited Chile and spent a couple of days with Mr. Rosenburg, a former student.

When we were in Australia last year, one of our former students made all the arrangements, and was with us all the time we were there . . . five days.

Larkey: It's extremely helpful to have a guide in a foreign country.

Winkler: It really makes it easier to see a great deal in a short time.

Larkey: In the light of your experience abroad, how would you rate the production of the California grape and wine industry in regard to quantity and quality?

Winkler: Our table grape industry is among the best. And of course California produces about 40 per cent of the raisins of the world. We have about 2 per cent of the wine grapes of the world, but we produce about 3 to 4 per cent of the wine. Our production per acre or unit is high. And, at the present time our wines compare most favorably with those in other countries. Our so-called "standard wines," which theoretically would occupy the place of vin ordinaire in the other countries, are way above those of other countries in quality. In the last ten years I've never had a spoiled bottle of wine in California. Over there, if you buy the ordinary wine you will get some that are high in volatile acid or poor otherwise.

Larkey: Might this be due to those high standards of quality that you helped set?

Winkler: It goes right back to our technology. We have means of controlling the production and marketing processes, which many of the people in foreign countries don't have.

FACULTY RECRUITMENT, WARTIME ECONOMIES

Larkey: Shortly after you returned from your first stay in Europe you were given added responsibilities when the new Department of Viticulture was located on the Davis campus.

Winkler: Yes, Bioletti retired in '35 and the former Division of Viticulture and Food Products was divided. Food Products was set up as a department at Berkeley and Viticulture was set up as a department at Davis.

Larkey: So all of viticulture was at Davis after 1935?

Winkler: Yes. But, of course, when Repeal came, the people in food products were better equipped to help industry in their beginning of wine production than we were because we'd been working solely with plants. Their processing equipment and procedures fit into the scheme of wine production. So, during the first two or three years they were probably of considerable more help to industry in the actual processing than we were. But we finally demonstrated to the satisfaction of the University administration that wine-making was more closely tied to grapes [viticulture] than it was to processing, so enology became a part of the Department of Viticulture and Enology.

Larkey: It formerly was with processing?

Winkler: It wasn't with them, but there were people who thought it should be with them because of the processing. But the variety determines the type of wine, and the climate in which it is grown determines the level of quality of the type . . . both of which are definite factors of viticulture.

Larkey: What about your administrative responsibilities? Were you aware that you would become department chairman before Bioletti retired?

Winkler: No, I became chairman in '35 when he retired, and Professor [W. V.] Cruess became chairman of food products at Berkeley.

- Larkey: What was the extent of your faculty in 1935?
- Winkler: [H. E.] Jacob came on in 1921, six months after I did. We were the only two here at Davis. Professor Bioletti still commuted from Berkeley. And then in '35 we took on [Maynard A.] Amerine, and [Harold P.] Olmo came on as a research assistant in '34. We also had one other man. W. O. Williams was my technician for several years, and then he took his doctorate at Berkeley in plant nutrition. He was on the staff in that period from '37 on. So there were the five of us on the staff in '37.
- Larkey: Had Olmo taken his training at Berkeley?
- Winkler: Both Olmo and Amerine took their undergraduate training here [at Davis] and then took their doctorates at Berkeley.
- Larkey: So during the period from 1935 to 1939 the viticulture department had a faculty of five.
- Winkler: Yes. And then in '39 we began our expansion. We took on Dr. Castor in microbiology of wine production and [James F.] Guyman in brandy production.
- Larkey: Wasn't this about the time you were able to get a considerable amount of money appropriated for construction of the enology laboratory?*
- Winkler: Yes it was. Then after World War II we added [R. J.] Weaver and [R. E.] Nelson in viticulture, and about 1950 we added [A. D.] Webb and [H. W.] Berg in enology. Later C. J. Alley and C. S. Ough were added.
- Larkey: I imagine you also have many technicians. Have others besides Williams gone on to take their Ph.D's?
- Winkler: Yes. [A.D.] Webb also started out as a technician and after World War II he took his doctorate and came back on the staff. The others had their degrees when we hired them, except [H. W.] Berg. Berg never had taken a doctorate. But he had 14 years of industry experience before we took him on, so that would be the equivalent to a degree.
- Larkey: And I think we should add your name at the head of this list of eminent viticulturists and enologists.
- Winkler: Well, we're not talking about myself. The younger men are doing well. They're different, of course . . . everything has

* See also pp. 20 and 72-73.

Winkler: become more specialized. And they haven't been here so long.

Larkey: With regard to the recruitment of new faculty members, what inducements were used to attract men of such high caliber to join your department? You seem to have done rather well through the years.

Winkler: I think we've done well. We found men with the training we wanted, told them of our program, and asked them to come with us. And, of course, we used the University as a selling item.

Larkey: The University's academic reputation and salary scale were effective selling points?

Winkler: Yes, at that time.

Larkey: Well, having served as chairman during the department's formative years it must give you special pleasure to see that so many of your colleagues have obtained international reputations in their respective fields. As scientists, I wonder if you have any comments on some of their major contributions.

Winkler: Well, Amerine is recognized the world over as an enologist, and Olmo is recognized as extensively as a geneticist. He [Olmo] has developed several varieties that are going to be of tremendous value to the wine industry in the interior valley, the hotter areas. Two that are unusually promising are being released this year. And, of course, he developed Perlette back in the mid-forties.

Larkey: Might that variety have been named for your wife?

Winkler: No [laughter], it was named on the basis of its color and round shape. It has really gone over as a commercial variety. And more recently he has added to his stature by taking over and making real progress in the mechanical harvesting work.

Larkey: There has been a lot of plant breeding and genetics work involved in the mechanization work.

Winkler: Yes, there has been. And he's had good ideas about that.

Amerine is, of course, an enologist . . . has an excellent palate. And we've done something in California that we can't take all the credit for, but we can take most of it for the division of the state into [climatic] regions. And he's participated in tastings abroad, judging, and his work in the scientific phase of wine-making has gotten him across.

Winkler: Berg, of course, stands well with industry because we recruited him from there. He had fourteen years of industry experience.

The other people are not so well known abroad.

Larkey: What about their scientific contributions?

Winkler: It has been good. All of them are well trained. You might not agree with the directions of development but they've all done good work.

We have one outstanding young fellow coming along . . . the fellow that is taking my place, [W. Mark] Kliever. He's going to make a showing not only for the industry but in the scientific development of factors influencing fruiting.

Larkey: Was he trained here at Davis?

Winkler: No, he was trained at Cal Poly [California Polytechnic Institute at San Luis Obispo], believe it or not, but then he went to Cornell and took his doctorate back there. He grew up in Southern California and came to us by way of Oregon.

Larkey: Well, it's nice that you approve of your successor in your particular field of interest.

Winkler: Yes, he's following up on angles of the projects that I started. He's building on, putting more science into it and he's well trained to do that.

Larkey: During World War II, when the Davis campus was taken over as a training center by the U.S. Army Signal Corps, were the research programs of your department affected?

Winkler: It didn't affect us at all, except that it practically suspended the work in wine production. You see, all the people that we had on the staff in Enology, were in the army. The department contributed 26 man-years to the armed services during World War II, and I took care of the aging of those wines that we had made in '39. Amerine went into the army in the summer of '42. So, this very important work was suspended from, say, '40 until about '44 or '45.

Larkey: Were wines made elsewhere to give you samples for that period, or are those years blank spots in your wine libraries?

Winkler: What we did was to age and bottle our own as they came along, and, of course, we had a gap then. But we had '35 to '39. We have five years of wines there that we used for putting out the

Winkler: first publication of the composition and quality of the California grapes and wines--published in 1944.* So, we cashed in on what we'd done before World War II, and got the data out to industry. After World War II a lot of that work was continued and then it was finally published in 1963.** Some of the same varieties, that we didn't have enough information on for the 1944 publication, were added.

INTERDEPARTMENTAL APPROACHES TO COMMON PROBLEMS

Larkey: Interdepartmental research projects at Davis have also resulted in some significant contributions to the overall development of agriculture in California. How has your department been involved in these cooperative projects?

Winkler: Well, we've cooperated extensively with the mathematics department on our statistical evaluations. [George A.] Baker was used particularly in this work. And we've used people from math on our tasting panels, namely Ed [Edward B.] Roessler and Al [Albert C.] Burdette. We also used pomologists on our tasting panels--L. D. Davis is a regular one.

Of course, we've worked with the agricultural engineering department on the development of the grape harvester--the second generation say. The one that was brought out in the beginning between agricultural engineering and myself--has been outdated in our country. It's still used abroad. But the ones they're using now are based on a different principle. But that's another occasion of cooperation between departments. You might say we've made use of the people that we could use; that is, that would contribute to and strengthen the work in our department.

Larkey: What about the important viral research studies?

Winkler: I was going to add that. Yes, that was probably as extensive, or more extensive, than any of the others. When Pierce's disease reoccurred in the San Joaquin Valley in 1935 and really took over, we had a cooperative project with plant pathology and entomology.

* See p. 19.

** See also p. 19.

Winkler: [Wm. B.] Hewitt in plant pathology worked on the virus, identified it; N. W. Frazier and J. H. Freitag in entomology identified the vectors and the host range of plants; and I worked on the climatic relationships. The work on climate finally indicated definitely why we had these epidemics of Pierce's disease. Of course, climate itself couldn't have done that, but it was closely correlated with the development of the population of hoppers, in the years 1935-1941. Those were years of excessive rainfall, the hoppers multiplied in excessive numbers, and when the natural vegetation dried up in our rainless summers, the hoppers, without something to feed on in the grass lands, moved into the vineyards. Otherwise, the grape vine is not a desirable host--let's put it that way--I don't know if that's the way the entomologists would put it--but the hoppers rarely spread the virus in the vineyard from vine to vine.

Larkey: You've spoken with Ruth Teiser about your conclusions on that research project*which has certainly had far-reaching effects on the development of virus-free planting stock.

Winkler: Yes. In 1952, then, we renewed the cooperative project between plant pathology, working jointly with the State Department of Agriculture and the Wine Institute on the development of virus-free planting stock. In the beginning we'd get going with virus-free vines and then plant pathology would come up with another virus. We did that about three or four times. We thought we were ready to go, and they'd find another virus. So, we had a rocky beginning. They still find new viruses, but there are not very virulent. They're of minor importance, so they don't bother us. Then, too, at the present time, practically all the new planting, at least by people who know something about grapes, is done with vines that have undergone heat-therapy, which has rendered them essentially virus-free. Even the minor ones are removed from the plant by heat treatment of the growing plant. The vines are grown at a hundred degrees Fahrenheit for a considerable period of time, and then the very tip is taken to produce a new plant. It's virus-free. We knew that the heat attenuated the virus; in the spring of the year some of these vines are really messed up with virus-deformed leaves and so forth, but by the end of the year, after it gets hot, well, the leaves are normal. W. B. Hewitt of plant pathology and E. M. Gifford of botany introduced heat therapy for vines. So now all varieties are propagated from heat-treated vines.**

*See pp. 35-36.

**See also pp. 49-50.

A LONG-AWAITED TEXT FOR STUDENTS OF VITICULTURE

- Larkey: We should also speak briefly about your textbook, General Viticulture. You've already discussed the original need for it,* but I notice that you're currently very busy on a revision. This text is something you worked on for a long time. It must be gratifying to know that it's been so well received, even translated into foreign languages.
- Winkler: Yes, it has been. It has made a real place for itself among the books in viticulture, even in the countries like France, Germany and Italy. They recognize it. They've not translated it, but it has been translated into five different languages. At least the rights to do that have come through, and we know that it's in several of those languages. And we are now working on a revision. It will have been out ten years before we get the new one into print, in the spring of '73.
- Larkey: Special recognition was accorded your textbook in 1964 when you were awarded a Laureate diploma and the "Viticulture Techniques" prize by the Office International de la Vigne et du Vin (OIV).
- Winkler: That office regularly sponsors a competition among the new books that appear each year on various phases of viticulture and enology. My book was in the area of technology of grape production. It was real generous of the French-based organization to give an award to a book produced in a relatively young grape-growing country. I appreciate their evaluation.
- Larkey: Well, you've contributed extensively to writings over a broad range of different types of publications. I see by the Encyclopedia Britannica that your name is under the section on "Grapes." When was that written?
- Winkler: Yes, I wrote that for them, quite awhile back [1945]** They haven't revised it. I don't know what year that was written. I also wrote the grape section for The Garden Dictionary, put out by Houghton Mifflin Company in 1936 and edited by Norman Taylor.
- Larkey: Well, you have an extensive bibliography to your credit. I won't begin to refer to each of your publications, but I think it's significant that the library in the new Wickson Hall has been named in your honor.

*Pp. 46-47.

**Bibliography, p. 133, #51.

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

IN RECOGNITION OF HIS MERITORIOUS ACHIEVEMENTS HAVE CONFERRED
THE DEGREE OF DOCTOR OF LAWS UPON

ALBERT JULIUS WINKLER

FOR FORTY YEARS A PIONEER AND LEADER IN RESEARCH FOR THE GRAPE GROWERS AND WINE
MAKERS OF THE STATE OF CALIFORNIA · SERVING AS PROFESSOR OF VITICULTURE AND ENOLOGY,
AND AS CHAIRMAN OF HIS DEPARTMENT FOR MORE THAN TWO DECADES, HE PLAYED A KEY
ROLE IN DEVELOPING ITS CURRICULUM AND IN ESTABLISHING THE HIGH STANDARDS OF RE-
SEARCH, TEACHING, AND EXPERT SERVICE FOR WHICH IT HAS BECOME RENOWNED · HONORED
AS FACULTY RESEARCH LECTURER IN 1957 · TODAY, AS PROFESSOR EMERITUS, HE CONTINUES HIS
VIGOROUS AND PRODUCTIVE PROGRAM OF INVESTIGATION AND PUBLICATION · WE SALUTE
HIM TODAY FOR THE VARIETY, QUALITY, AND SCOPE OF HIS ACHIEVEMENTS

IN WITNESS WHEREOF THIS DIPLOMA IS INSCRIBED WITH THE SIGNATURES OF THE
PRESIDENT OF THE REGENTS AND THE PRESIDENT OF THE UNIVERSITY, AND TO IT HAS
BEEN AFFIXED THE OFFICIAL SEAL

GIVEN AT DAVIS THIS SEVENTH DAY OF JUNE IN THE YEAR OF OUR LORD
ONE THOUSAND NINE HUNDRED AND SIXTY-THREE AND
OF THIS UNIVERSITY THE NINETY-SIXTH

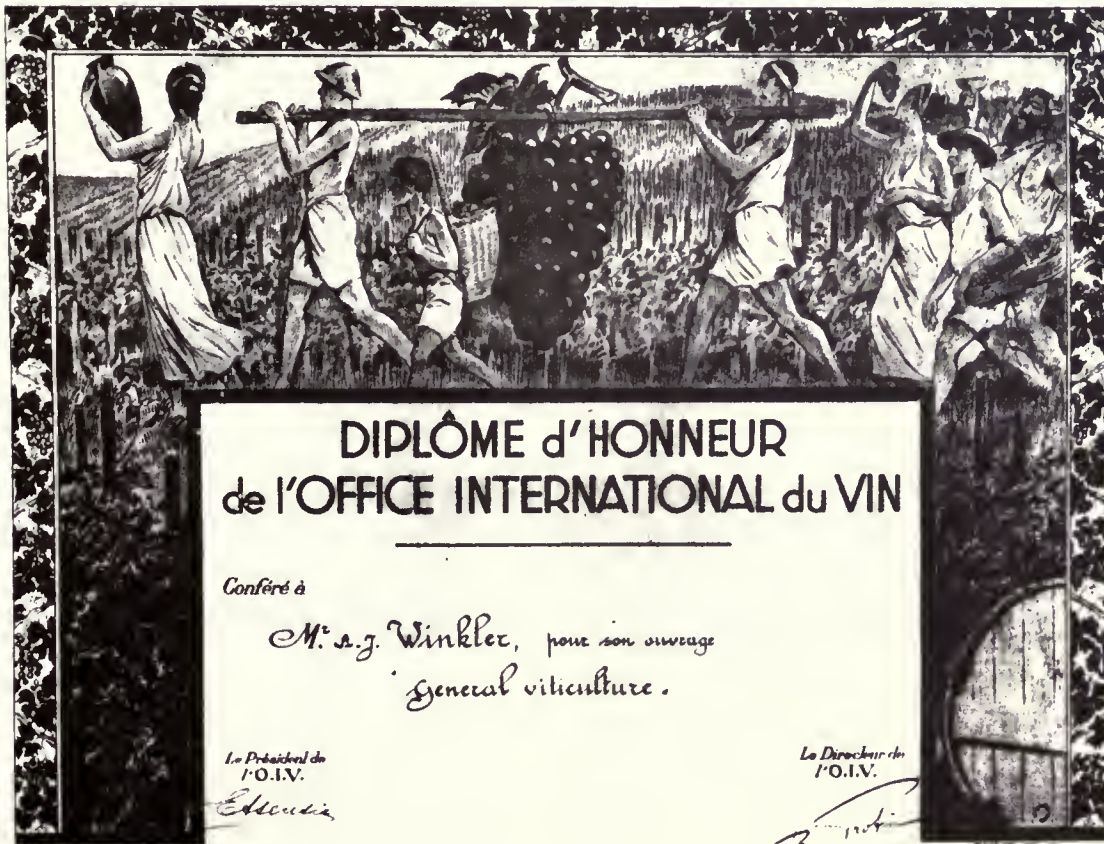
Edmund G. Brown

GOVERNOR OF CALIFORNIA AND PRESIDENT OF THE REGENTS



Clark Kerr

PRESIDENT OF THE UNIVERSITY



Winkler: Yes, that was done while I was out of the country too. [Laughter]

Larkey: The Davis campus is fortunate to have an extensive library collection on wines and grapes.

Winkler: I can't take credit for the collection. Amerine's been the moving spirit in that. He makes collections every time he goes on a trip. And some of the other fellows, of course, have ordered books in their lines. I have added a few to the collection of viticulture books in the different languages, but I haven't done as much as Amerine has. I don't know why they called it the Winkler library, but if they wanted to do it, that's all right with me.

Larkey: Well, I think you deserve the honor. How would you rate the library collection at Davis as compared to grape and wine collections that might be held elsewhere?

Winkler: It's one of the best. Undoubtably the French at Montpellier have a good collection. Giesenheim has a very good collection, and beyond that I haven't been into too many of them. I haven't been in any in Australia. So I figure those two would be probably the best, and, of course, the International Office Du Vin has a library in Paris. I haven't been in that, so I can't say how good it is. But ours would rate among the better ones.

Larkey: Dr. Amerine is preparing a bibliography of the viticultural and enological collection here at the Davis library, which I think should be very useful to serious students of the field.

CAMPUS ADMINISTRATORS AND ACADEMIC COMMITTEES

Larkey: During the last 50 years you've seen a succession of campus administrations come and go. Beginning with the presidents of the University, what would be your overall opinion of the impact of a man such as [Robert] Gordon Sproul?

Winkler: Oh, he was a great University president--among the best--and he was a very good supporter of ours in the development of the enological work. Dean [Claude B.] Hutchison was another supporter of our work. He was largely responsible for getting the enological work tied in with the viticultural work, from an administrative point of view. And, as I mentioned before, he carried us along

Winkler: when we were expanding rapidly and equipping the enological laboratories.*

Larkey: You also did a lot of personal pleading on behalf of that \$73,630 building, didn't you?

Winkler: Oh, yes, we learned how to get along with him [Hutchison]. He was a good administrator, but you had to get to him when he was in the right mood. If you had a big problem, you always went to see him with a few minor problems. You took up the minor problems first, to feel out the situation, and if it was okay, then you brought up the big problem. In other words, you had to meet him at the right time to get real big business accomplished, but that must be true of every administrator who has such a wide variety of interests and problems to deal with.

Larkey: I think they'd call that academic diplomacy. After Hutchison returned from an overseas assignment with the Rockefeller Foundation and became dean of the College of Agriculture at Berkeley, did he spend very much time on the Davis campus?

Winkler: Considering his responsibilities, he spent a reasonable amount of time on the David campus. And he was easy to meet.

Larkey: At the time you came to Davis who was the local administrator at the University Farm?

Winkler: Hutchison was in there for a time. You see Hutchison was on the Davis campus for three or four years. He wasn't here the first year I was. There was nobody here, as I recall.

Larkey: Yes, Hutchison served as director of the northern branch of the University of California at Davis from 1922 until 1925. Then he went to Rome.

Winkler: Then, if he came in 1922, there wasn't anyone here when I came in 1921. I believe that Tom Tavernetti, who later went to Berkeley, handled administrative duties during that first year of my residence on the Davis campus, before Hutchison came. I had very little contact with Hutchison at that time because I was not teaching and the research I was doing in viticulture was cleared through Professor Bioletti in Berkeley. I wasn't responsible to anyone on the Davis campus between 1921 and 1925.

Larkey: After Hutchison went overseas, who was appointed director at Davis?

Winkler: [Walter L.] Howard. He was capable but he didn't have too much authority. And the same thing was true of K. A. Ryerson.

*See also p. 20.

Larkey: Yes, Howard served as administrator of the Davis campus until 1937 and then Ryerson came.

Winkler: I think Ryerson was assistant dean. And the decisions were still made in Berkeley. We could go over and talk with Ryerson. He was very congenial, and I'd give him credit for administrative ability, but he didn't have a chance. That is, all the big decisions were made in Berkeley.

Larkey: Were faculty members involved in decision-making at this time?

Winkler: Limited. Hutchison administered the College of Agriculture while he was dean. That's the only criticism I'd make of the man. He didn't delegate authority to his assistants. But that just made for a little bit more red tape, that's all. I'd go over and talk to Ryerson and get his opinion on a matter and then I'd go to Hutchison and get the decision. That's what it amounted to.

Larkey: Did this administrative situation continue more or less the same until after Hutchison's retirement?

Winkler: Yes. Then Stan Freeborn came along as provost. He was administrator of the campus. He was very fair as far as our department was concerned.

Larkey: A degree of autonomy was finally granted to the Davis campus in 1952. When Ryerson became dean of the College of Agriculture at Berkeley and Stanley B. Freeborn was named the first provost of the Davis campus, were administrative procedures simplified for you, as chairman of the Department of Viticulture and Enology?

Winkler: Well, it made it easier for us because we dealt directly with the man who was making the decisions here on campus. My relations with Freeborn and Dean F. N. Briggs were very good. We had a little difficulty in the budget committee with Freeborn, but not from the department point of view. He was a very good supporter of our work, including enology in particular.

Larkey: What were some of the areas of disagreement between Freeborn and the budget committee?

Winkler: He was inclined to disagree with some of our appointments to ad hoc committees . . . on a few occasions he added men without consulting us. The latter we did not condone, so we prepared a letter on the subject. Instead of sending the letter I delivered it in person, so there would be no misunderstanding of our intentions. It was a matter of clarifying the rules as we understood them.

- Winkler: Beyond this we found him to be very fair. He did not always agree with our recommendations but that was his privilege.
- Larkey: When the decision was made to create a general campus at Davis, to expand the College of Agriculture and to bring in the College of Letters and Science, were you in favor of this change?
- Winkler: I thought it would be a good thing. Many people didn't. Many people thought it would reduce the favorable image of the College of Agriculture and possibly reduce the support of the College of Agriculture because there would be so much more to take care of. I thought it was good for the College of Agriculture because we'd have more supporting individuals on the campus to work with. I think it's worked out very well. Some people don't agree with me on that. They think that agriculture is suffering by virtue of the fact that there's so much more competition for financial support. In my opinion this is a general condition made more severe by the present political administration.
- Larkey: As you say, there were people who strenuously objected to this Regents' decision, but they really didn't have much to say about it, did they?
- Winkler: Well, I guess our staff as a whole could bring pressure to bear, but it was in the cards that Davis was to become a major campus in the Sacramento Valley. I don't see that it's affected our department in the least, excepting for support, and the whole university is suffering from lack of support right now.
- Larkey: You served for a number of years on the budget committee, perhaps the most important faculty committee. What was the scope of your responsibilities when you served during the years of 1954-1959?
- Winkler: Let's say the faculty budget committee is one committee where you do things, and your work isn't pigeon-holed. It's right there and it's either acted on, passed along, or it's turned back, and you get to it another year.

The responsibility of the budget committee is great because it passes on all new appointments, all promotions, and all merit increases. It's really the one committee that does more to maintain and increase the quality of the institution than any other. Well, the educational policy committee may be of equal importance in that regard, but the budget committee certainly occupies a strong position with reference to the maintenance of the quality of the institution because it determines who is

Winkler: appointed and who is advanced. At least it has a very strong say in what goes on, so it's a gratifying bit of work--I say a "bit" of work; it's a lot of work. But you do have the feeling that you've accomplished something. We put in a lot of time and they put more now. Of course, they have a few more members now. There were five when I was on it. I don't remember how often we met. Probably met 50 - 60 times a year, which would be about once a week. At certain periods of the year, in the fall of the year when we were making promotions, we met three times a week, and then in the spring, when we were passing on the merit increases, we met probably quite frequently again. Then at other times we didn't meet.

If I am not mistaken, I was the third chairman of the budget committee on the Davis campus. When I came on, all our recommendations were cleared through the Berkeley committee and the dossiers of all our faculty and staff members were filed there. This was inconvenient and we soon saw no reason to direct our recommendation to the provost and then to the Berkeley committee.

We succeeded in bringing the dossiers to the Davis office and this also soon placed our committee on a par with the Berkeley committee. We used Berkeley staff members on many of our ad hoc committees.

It apparently was custom for the deans of agriculture, in particular, to sit in with the budget committees on all campuses, to represent those in the college who had only experiment station titles. On our campus the dean came with a complete list of names for the ad hoc committee of each individual to be considered . . . both professorial and experiment station men. At times the budget committee did not agree with his selections, which led to difficulties. At the time, four of our budget committee members had experiment station titles as well as our professorial titles and we considered this ample representation of the experiment station men. As a result, I submitted the recommendation at a statewide budget committee meeting that deans should no longer be consulted about ad hoc committee appointments. President Clark Kerr was present and considered the recommendation in order. So did the statewide committee members. [Now] the deans are no longer consulted, but, of course, they still have the right of appeal.

Larkey: Were you involved in policy-making decisions?

Winkler: Very few. The educational policy committee took care of most of that. We didn't have enough information to really go into the

Winkler: policy with reference to the establishment of new lines of work, or something like that. When I was chairman of that committee, we established the committee in charge of the animal physiology group, and another committee was in charge of the biochemistry . . . not as departments but as individuals from various departments. So these decisions were made by the educational policy committee. I served from about 1949 to 1952. Then, starting about '55, I was on the budget committee for five years. I was chairman of both of them . . . one year of the educational policy committee, and two years of the budget committee.

Larkey: I expect you saw a lot of decisions made during those years.

Winkler: When I got through with the budget committee I knew everybody on the campus by name. I didn't know all their faces, but I could give you a pretty good evaluation of them.

That was a time-consuming committee, much more so than the educational policy committee.

Larkey: Weren't you also still department chairman at the time Clark Kerr was president of the University of California?

Winkler: Yes, I overlapped him. I learned to know him more through the budget committee work than I did through the departmental work. We didn't have the occasion to work with him like we did with Sproul, that is through Hutchison to Sproul. By the time Kerr came along, we were pretty well established. We had our staff, and we had the facilities so there wasn't the need for help from higher up . . .

I thought the world and all of Kerr. He was a real administrator and a scholar of the first order, but he didn't get along with the conservatives. There was a problem [laughter]; I'm not prepared to discuss that.

Larkey: With all the rapid growth and expansion that has occurred since Davis became a general campus of the University of California were there changes in the College of Agriculture during the chancellorship of Emil Mrak that affected your department?

Winkler: Mrak was a very good friend of ours. As a matter of fact, I wrote the recommendation supporting the recommendation for his appointment as chancellor.

Larkey: You recommended Dr. Mrak as the successor to Chancellor Freeborn after the latter's retirement in 1959?

Winkler: I prepared the brochure, or what you might want to call it, with the aid of the other committee members.

Larkey: Was this a committee report?

Winkler: Yes, it was a committee of five.

Larkey: Who else served on that selection committee?

Winkler: Emil Mrak [laughter]--Yes, I remember him because we commuted back and forth to Berkeley together--and H. A. Barker, L. Constance, myself, and a man from the Riverside campus.*

Larkey: Had you known Mrak as a student and how did you feel he was particularly suited for the post of chancellor?

Winkler: I had followed his development in food products. You see food products and viticulture were a joint department until 1935, so I learned to know these men back there. There was a George L. Marsh, Mrak, W. V. Cruess, and M. A. Joslyn. I served on several of his promotion committees, followed his reorganization of food products into food technology, and the expansion of his staff on the Davis campus. I recognized him as a capable administrator. He was a successful chancellor. Agriculture didn't suffer during his term as chancellor, except money-wise. But as far as agriculture's position on this campus, I don't think it suffered at all. Right up until the present time, and I don't know enough about the present situation to say, but agriculture's lost very little support from the chancellor's office, even as a result of our becoming a general campus. The chancellors that we've had, up to and including the present one, have had a very good understanding of agriculture and its problems. As far as it was financially possible and otherwise, too, they have seen to it that agriculture has gotten its share of support.

Larkey: In relationship to the economy of the State, agriculture is the number one industry in the State of California, and I think people have recognized this.

Winkler: That's right. And Davis is the principal agricultural branch of the University.

Larkey: Since you did serve on the budget committee, I could ask you to comment on some of the men who held the purse strings, more or less, as far as expenditures on the Davis campus were concerned, such people as Ira Smith, who served as comptroller for many years.

Winkler: Well, Ira Smith had no relation to the budget committee. The only person that we had to deal with on the campus was the provost or chancellor, provost to begin with and then chancellor. Ira Smith belonged to the other generation. He was here as

*Mrak met with this committee during some of its initial sessions but did not serve as an official member. He did, however, serve concurrently on an advisory committee to select a replacement for H. A. Wellman as Vice President - Agricultural Sciences.

Winkler: business manager and comptroller from 1920 to about 1960. You had to understand the man to get what you wanted. If you could plant the idea in his mind and let it develop a bit, he'd finally think it was his own, and then you could do business.

Larkey: Did he have the authority to make a decision on how funds were spent in your department, for instance?

Winkler: He assumed that authority in some things. Personally I had no difficulty with Ira. Some of the other departments did. Now it may not have been Ira's fault. It may have been the other person's personality, but as far as viticulture was concerned, we got along very well. He didn't appreciate enology, so it was a little bit more difficult to get things for enology than for viticulture. But, there again, I think that we have to say that it was all due to his lack of understanding of enology and of the relationship of enology to agriculture in the State. Grapes are the biggest single fruit industry in California. And enology is an integral part of that industry. So we have a responsibility in enology, which is comparable to the responsibility of any other department to industry. And I don't think Ira quite appreciated that. He did not drink wine and was concerned about the possibilities of difficulties arising.

A BACKWARD GLANCE OVER FIFTY YEARS

Larkey: Looking back over the past 50 years can you perhaps recall a few special memories that might be interesting to students and faculty in the years to come? Do you have any special recollections about some of the early Picnic Days, or student activities?

Winkler: Not anything outstanding. I couldn't think of anything that would really stand out. Of course, the department always participated in Picnic Day. It's supposed to be put on by the students, but the staff even to this day, participates in it rather extensively. It's one of the best public relations deals that any school could develop.

Larkey: Yes, a great many people visit the campus every year.

Winkler: It gives people who otherwise probably have little contact with the men of the College of Agriculture or with the publications of the College of Agriculture to come here and see a few graphs of this, that and the other thing. And they go away with a little better understanding of what we're trying to do for them.

Larkey: You said you didn't recall that food products experiment with carbonated fruit juices which Professors [W. V. Cruess and [J. H.] Irish tried out on the general public at the 1922 Picnic Day, and * which was pictured in The California Grape Grower of June 1, 1922.

Winkler: No, I don't remember the details of that, but they did a lot of work on that sort of stuff. You see, about that time we had a surplus of grapes. It shouldn't have been quite that early, but Prohibition came into effect and as a result of Prohibition we didn't use our grapes here but shipped them back East where they sold for fabulous prices. People over-planted and got themselves into difficulty. In 1926 we had the largest grape acreages ever . . . 647,000 acres . . . and huge surplus. We've got about 500,000 acres now, but we've been down to below 450,000. Joslyn was working on outlets for surplus grapes as well as other fruits. He was a concoctor of new ideas for putting out new products at that time.

Larkey: In addition to public relation displays on Picnic Day, many departments at the University have sponsored short courses, or demonstration programs. Your department has annual Grape Day programs. Do you feel that these events have continued to meet the needs of the grape growing industry?

Winkler: We should do more of it. We have a Grape Day at Oakville, at Reedley . . . that's the San Joaquin research and extension station, and then at Davis. They go around in a three-year cycle, one a year.

Larkey: Are these programs basically a demonstration of the work that's currently being done at the University?

Winkler: Yes, that's it. We started with Grape Days on the campus in the early '50's. We've been very satisfied with the attendance. There are three or four hundred every year. And considering that Davis is quite a way removed from the grape industry, it's gratifying to see how many will come and how far they'll come. So they must get what they came for. So Grape Days have been one of our successful means of getting over to industry what we're doing. We meet in the vineyard regardless of weather conditions. In the early days we used to have it in the old gym, but some of the growers who were good enough friends of ours to tell us what they thought of it criticized us. Their reaction was, "Take it to the vineyard." We've met in the vineyard ever since. Some days it's very hot. And some days it isn't. Starting at nine a.m. the Grape Day program usually includes six topics, each being repeated to smaller groups six times, three times before and three times after lunch, and then they get away about 3:30 p.m. They appreciate it.

* See Bibliography, p. 135, #10.

- Larkey: What about some of the student faculty Labor Day activities that were held every Leap Year until recently?
- Winkler: Oh, we participated in them. The last one, or the second to the last one, we painted the bleachers at the athletic field. I worked on that. Another year we dug a hole for the swimming pool. And after the work was completed they threw Woody Wilson of the P.E. department in.
- Larkey: That was in 1936, I believe.
- Winkler: Those are the two that I can remember best. I participated in practically all of them in one way or another, but I can't recall what we did in the other years.
- Larkey: They installed a sprinkler system on the athletic field one year.
- Winkler: Yes, that was done one year. And I think we landscaped the Quad one year, changed it from an alfalfa field to the present situation. That was a Labor Day project before World War II [1932]. These activities contributed to a little bit more friendliness between the staff and the students.*
- Larkey: It evidently became increasingly difficult to organize Labor Day projects with the large enrollments of the 1960's.
- Winkler: Yes, it isn't the same as it used to be. Also, many students didn't show for work.
- Larkey: Still, you hate to see students and faculty give up campus traditions.
- Winkler: If we could have kept enrollment down to 350-500 students, it would have been all right. [Laughter]

ACADEMIC AND RETIREMENT HONORS FOR A VITICULTURALIST

- Larkey: You've been held in very high regard by the students and I understand that you were selected as the honorary centennial faculty initiate by members of Alpha Zeta, the agricultural fraternity.**

* See p. 119 and Bibliography, p. 135, #11.

** See Bibliography, p. 135, #12.

Winkler: I was, about five years ago.

Larkey: And you also received the recognition of your colleagues when you were selected as the Faculty Research lecturer for 1956-57.

Winkler: They did that while I was in Europe. When I came back I told them I wouldn't do it, but they said, "You can't turn it down. It's never been done, and we won't let you set a precedent." So I went ahead and gave the lecture. ["The Relation of Leaf Area and Climate to Vine Performance and Grape Quality."]*

Larkey: Well, it was very well received, and I gather that your lecture is one of the few that have been published.

Winkler: Yes, as far as I know, it's one of the few. I thought they would all be published.

Larkey: The committee didn't agree with you?

Winkler: No, and some people have simply pulled certain things out of their work, and put them together as a lecture. Some of it had been published; some of it hadn't. So, I think that's the reason the faculty research committee didn't want to publish them. But I felt it would have made a nice collection in the library for the future if we had put them together.

Larkey: That seems like a good suggestion. It must have also given you special pleasure to be the first viticulturalist to be elected president of the American Society of Enologists in 1953.

Winkler: Well [my election was], partly owing to the fact that I was active in the organization of the society in 1950, and even though it's called enology, it's recognized by those who organized it and by others, that it includes the viticulturalists. And they finally changed the society's journal to The American Journal of Enology and Viticulture.

Larkey: In 1959 the American Society of Enologists also presented you with a merit award.** Then in June of 1965 the organization made you an honorary life member. Have you maintained membership in other honorary societies through the years?

Winkler: Well, I'm a fellow in the American Society of Horticultural Sciences. They made me a life member in 1970.

Larkey: Isn't being named a fellow in an academic society also an honor?

*See Bibliography, p. 129, #51.

**See p. 120.

Winkler: Yes, it's an honor. And then last year, 1971, the American Association for the Advancement of Science gave me that 50-year plaque. I was made a fellow of this association in 1925.

Larkey: Fifty years is a long time to belong to a scientific organization. What other scientific societies do you belong to?

Winkler: I am a member of the American Society of Plant Physiologists, the American Society of Enologists, the American Society for Horticultural Science, the American Institute of Biological Sciences and the American Association for the Advancement of Science.

Larkey: You have continued to receive some special honors, even since you became a professor emeritus at the end of 1962. It seems particularly significant that during your lifetime, and in addition to the usual retirement testimonials, your university colleagues initiated a student loan fund in your name.

Winkler: Well, the loan fund is what they started to do. They didn't tell me about that to begin with. And then, when they told me what they were planning I said, "I'll do this, if you will contact industry for donations, I'll match them, and we'll call it a scholarship."

So now it is the A. J. Winkler Scholarship, instead of a loan fund. They got quite a few shekles from industry, so that the scholarship as it now stands yields about \$800 a year.*

Larkey: Are contributions still being made?

Winkler: No, they were made for about a year.

Larkey: Matching all those donations was a very generous gesture on your part.

Winkler: Well, it was also quite nice to find out what industry was willing to do.

Larkey: The retirement dinner honoring you and Mrs. Winkler, which was hosted by the Department of Viticulture and Enology on March 1, 1962, was attended by well-wishers from all over the State of California. With reference to this event, Mrs. Winkler modestly indicated that, in her opinion, the unprecedented attendance was partially due to the fact that Maynard Amerine was in charge of the elegant menu.

Winkler: [Hearty laughter]

*See also p. 48.

- Larkey: Do you have any special recollections of that memorable evening?
- Winkler: Well, I think the menu was excellent, but the growers in Coachella Valley weren't acquainted with Amerine's menu-planning role, so we'll have to divide the drawing card. It [the dinner] was well attended. We had over 150 people from industry.
- Larkey: In addition to the many faculty members and their wives who honored you.
- Winkler: Yes.
- Larkey: I've seen a number of additional statements of appreciation for your years of service with the University which adorn the walls of your study at home. Newspaper accounts at the time of your retirement also noted that you were given a plaque of appreciation by farm advisors in the 22-county area where grapes are grown commercially. They, too, were evidently grateful for the assistance you gave their agricultural extension programs over a period of some 40 years.**
- Winkler: I enjoyed working with industry people, and they often stopped by to ask questions and talk when they happened to see me in a vineyard. Sometimes the group would grow to eight or ten before we could proceed with what I was there to do. I spent many hours with farm advisors. In the earlier days we had cooperative plots with them. I appeared on programs in the counties.
- Larkey: As it worked out, you didn't retire in June of 1962 after all. Because of the special work you were doing, didn't the administration request that you remain on the faculty?
- Winkler: Yes, that special work was finishing my book [General Viticulture] I retired December 31, 1962.
- Larkey: And your contributions were further recognized in 1963 when the University of California conferred upon you a Doctor of Laws degree.
- Winkler: That was very good of the President and the Regents. I was in Europe when that happened. [Laughter] President Kerr was in Santa Cruz, at a University meeting. My daughter Ethel and her husband who live in Watsonville, went over and met him. They must have gotten talking about this, that and the other thing, and he said to her, "This is to be kept confidential, and don't you let your father get out of the State 'cause we're going to honor him." Well, I was out of the State, and of course President Kerr's letter notifying me that they were going to confer

*See p. 122.

**See p. 121.

Winkler: this degree upon me was forwarded. It reached me while we were in Munich, Germany. So when I wrote back to my daughter that this was going to happen, "but don't advertise it," she already knew it before I did. [Laughter] One of those things that happens. Yes, that was a real honor.

Larkey: I'm sure it was. Was it conferred at graduation on the Davis campus?

Winkler: Yes, in June of '63.

Larkey: So now you're a professor emeritus. I know you're busy revising your textbook. Are you planning new projects?

Winkler: No, I still work with industry. I've been working with them for a number of years, ever since I've retired.

Larkey: On a consulting basis?

Winkler: Yes. And Beringer's* wants me to help them out now. They've changed hands, and they've got a large expansion plan going, so I'll help them a day or two a month.

Of course, we've been enjoying the retirement. Mrs. Winkler and I have traveled. We were in Europe, as I say, when this honor was announced, and we were in Scandanavia in '65, in the Orient in '67. We were in Russia in '68, and in the South Pacific, including a week in the grape area of Australia in '70.

Larkey: Are you conducting any research projects now?

Winkler: None that will really amount to anything. I've given a seminar entitled "85 Years of Viticulture." And I finished writing that up. I don't know what's going to happen to it, but it would be good to have for our graduate students. So it might be published. I'm not actually doing any productive research work on grapes. I don't want to compete with the younger men. But I'm still available to help as a consultant. I take care of some correspondence, not too much, but some. And there are still people that call me up, and say, "We'd like to have you come out," and I do that just the same as I always did.

*Beringer Bros. winery.

TRENDS OF THE FUTURE

- Larkey: Looking forward, from your vantage point of what I would choose to call your "active retirement," what are your thoughts on future trends in research and education in the department of viticulture and enology? Do you feel that the emphasis is changing?
- Winkler: Well, the emphasis is changing. You see for all those years after I came here the College of Agriculture was a service institution. And then about ten or so years ago, when [Emil] Mrak became chancellor and [James] Meyer went in as dean of the College of Agriculture, we switched from a service institution to a basic science institution, insofar as that was possible. That is, we left it up to the farm advisors to take care of the dissemination of [University research] work, and they took on the application of all the practical work. That is, they were supposed to. Well, we [at the University] lost contact with industry, and now we are not getting support from the State. We go to industry for support, so it seems to me the department must go back with more service--not necessarily the same amount that we did before, but it has to become more industry-minded. They have to.
- Larkey: You are suggesting that there should perhaps be more contact between the department and the working industry. And yet, there seems to be a lot of criticism directed toward the University at this time by those who feel that a tax-supported institution shouldn't be giving services to, say, special interest groups like the grape or wine industry. How would you answer these critics?
- Winkler: Well, we're responsible to everybody in the state who's growing grapes or making wine. Some people make much more use of us than others, but the fellow that isn't making use of us--it's his fault--not ours. And the fellow that's out there that thinks the University's not doing anything for him--it's not our fault. That is, it wasn't in my day, and I don't think it will be for the near future.

Back there, that was the basic principle on which the College of Agriculture was founded, and we carried on on that basis up until about 10 or 15 years ago when we had this change that I mentioned. And now we are going to have to go back to closer relations with industry because our support is going to have to come from the industry unless we have a change in State support over what we're getting right now.

Winkler: And, we'll do that by simply carrying through on some of our work to the point of application more than we have for the past few years. And I don't know how this is going to affect the extension service, but that's not exactly our concern. They'll still have the opportunity to extend our information, but we'll probably do more of it ourselves.

Larkey: University research is also criticized in some circles for promoting mechanization of the industry at the possible expense of the farm worker.

Winkler: The big difficulty there is Mr. [Cesar] Chavez and his cohorts.* They are writing different contracts for different people. They're permitting some people to use machines; other people they're not. And it seems to me that they are injuring their own situation rather than helping it. That is, one organization can't block progress. Now they may work out different agreements with the industry to permit the use of harvesters, but still maintain essentially the same work force. That is, utilize harvesters to get the fruit off their vines when it should be gotten off, rather than have the harvest go slower by hand. I think that will come. It would be my opinion that labor never has needed to slow down.

For instance, we have mechanical pruners, pneumatic pruners I should say, in which the workman only has to pull the trigger. It's just as easy as pulling the trigger on a gun, or on any device. But they ruled them out because they thought it was a means of speeding up labor. I maintain that it's a means of getting the pruning done with less output of energy by the pruner. He can prune all day with this thing and doesn't become fatigued, whereas if he was using a shear, unless he's very experienced, he does get tired by late afternoon. But, no, we had three of these pruners down at Almaden and they're just sitting there.

They've got three harvesters down there, too. They're just going to waste. Well, they're for sale. But there are going to be harvesters used this fall by people who are not in the union as yet. They'll use the machines, so the machines may continue to develop. And the need for the machines is going to continue to develop even more rapidly with the great expansion in acreage that is now taking place.

Larkey: Would development of these machines drastically affect the farm labor situation in California?

Winkler: We'll still need people to operate the machines. The number is cut down, but by handling the crop faster, we'll need more people to do it. Of course, they say "If you harvest faster then we're

*United Farm Workers.

Winkler: out of work at the beginning and end of the season," but in the commercial deals down where I go, they could start punning as soon as they get the grapes off the vines because they don't get them off until mid-November, or later.

I still predict that in ten years 90 per cent of the wine grapes will be harvested by machine, same thing for raisins, but sooner. The raisin deal is a little bit more advanced right now than the wine deal for the simple reason that the Thompson Seedless grape is relatively easy to harvest by machine. They go in and cut the cane on which the fruit shoots grow a week before, and then either of the present type harvesters rattle the fruit off as individual berries or as small clumps of berries. You see, the stemwork of the cluster has dried sufficiently so it's brittle. Another machine then delivers the berries onto a continuous paper tray. After a week or ten days, or whatever time is required, the berries are dry. Then there's another machine that will pick them up. In the future this continuous paper tray will be rolled up to be used next year.*

So there is progress in the mechanization of grapes and raisins in California.

Larkey: Will mechanization result in increased acreage if there is sufficient demand for additional crops?

Winkler: There is no demand for an increase in raisins. No demand for an increase in table grapes, but there is going to be a shift in varieties from surplus table grapes and surplus raisin grapes. They will gradually come out and be replaced by wine grapes.

Larkey: And there seems to be a big upswing in the production of wine?

Winkler: Yes, there's a big increase in the demand for wines, especially the better quality table wines.

Larkey: Do you think this is a result of Americans traveling in European wine countries?

Winkler: Well, that could have been a factor. But it could be owing to education regarding wine and its place in the diet. There are lots of people that have never been out of California that are drinking wines now but weren't drinking them ten years ago. It's a matter of meeting up with people that drink wine, or just hearing about it on the radio and seeing it on T.V. or just a progressive development.

Larkey: The work that you and other members of the Department of Viticulture and Enology have done to improve the varietal plantings

*See also pp. 39-40.

Larkey: and processing techniques of California grapes should also be mentioned as a factor in the development of a better product. Wouldn't you concede that point?

Winkler: This has resulted in marked improvement in the wine of today as compared to those of twenty or thirty years ago. The quality of California wines will continue as we develop grapes the better suited to our conditions and with the further advances in our technology.*

THE WINKLER VINE--A VINE OF HISTORY

Larkey: And now, before I let you get back to the important work of completing your textbook revision, would you make a few comments on your most recent publication, dealing with the Winkler Vine during its first ten years of growth on the Davis campus.

Winkler: We planted this Mission grape vine near the Viticultural Field House in the University Vineyard at Davis in the spring of 1961 as an experimental project. We knew from historical records that unusually large and productive vines existed during the early periods of grape growing in California, but no studies had ever been done to determine what factors influenced their development.

So this vine was planted to determine what vines would do when given ample space, adequate trellis support, and rigorous crop control.

Larkey: Because of your special interest in the cultivation of the Mission grape this vine was appropriately dedicated in your name with a plaque which reads:

MISSION GRAPE

Vitis vinifera

Dedicated to Professor Albert J. Winkler

Pioneer and Renowned Authority of California Viticulture

August 20, 1964

Budded by Professor Winkler, September 1961

*See also pp. 22-24 and 82-85.



The Winkler Vine, April 15, 1971



Horticulture Building, Home of the Viticulture and Enology Department, 1919-23 and 1952-59. This photograph, taken in 1921 also shows the newly constructed Nursery and Grafting House near the banks of Putah Creek.



Professor A.J. Winkler during the interview, 1970.
Photograph by Ruth Teiser.

- Larkey: Who was present for the dedication ceremonies in 1964?
- Winkler: The staff of the department and many of the students majoring in viticulture and enology. It was a small event in the overall activities of the department.
- Larkey: From what you and the other members of the department staff have told me, the annual harvesting of grapes from the Winkler vine is a special event for you and the viticulture students.
- Winkler: Yes, the students take an interest in the harvesting, weighing and statistical analysis of the records.
- Larkey: And you supervise their work?
- Winkler: Well yes, and I take care of the pruning each year. One year we pruned normally but underthinned. That was in 1967. The crop was large (over 24 tons per acre) but maturing was delayed and both sugar and acid were low. The crop for the fifth through tenth years averaged 15.4 tons on an acre basis.*
- Larkey: Results of this ten-year experiment make it appear that the Winkler vine may also become a "vine of history." I'm glad to hear that the widening of Interstate 80 won't endanger its existence as you had feared it might.
- Winkler: Yes, they're not taking as much of the vineyard in the Armstrong tract as they originally planned.
- Larkey: Photographs were taken during the 1971 harvesting ceremonies. Was this done in other years?
- Winkler: No.
- Larkey: During the past fifty years you must have taken a number of photographs of various projects. A collection of these would provide pictorial documentation of many of the important research and extension projects we have been discussing.
- Winkler: Yes it would, but we don't have many. We took pictures of experiments but they never had any people in them. There may be some in the early departmental files. I don't know what's happened to those.
- Larkey: Several faculty members have promised to search their personal files and perhaps some of the growers could be contacted for early photographs.

* See Bibliography, p. 129, #59.

Larkey: A photograph of a young Winkler daughter standing in a local vineyard holding huge bunches of grapes helped advertise the viticultural possibilities of Yolo County in a promotional magazine of 1926, I believe.*

Winkler: Yes, I remember that picture of Marjorie.

Larkey: You've spoken extensively about the past development of the Department of Viticulture and Enology. Do you have any final comments about its future?

Winkler: It is in good hands. At the moment teaching is taking precedence over all else. Yet, research is being pursued as vigorously as ever but on a more limited scale. The direction of development has been established and I expect it will continue to progress along these and similar lines. Each man has a well-planned full program.

Larkey: I'll let you get back to your book and we'll look forward to reading the revised edition soon.

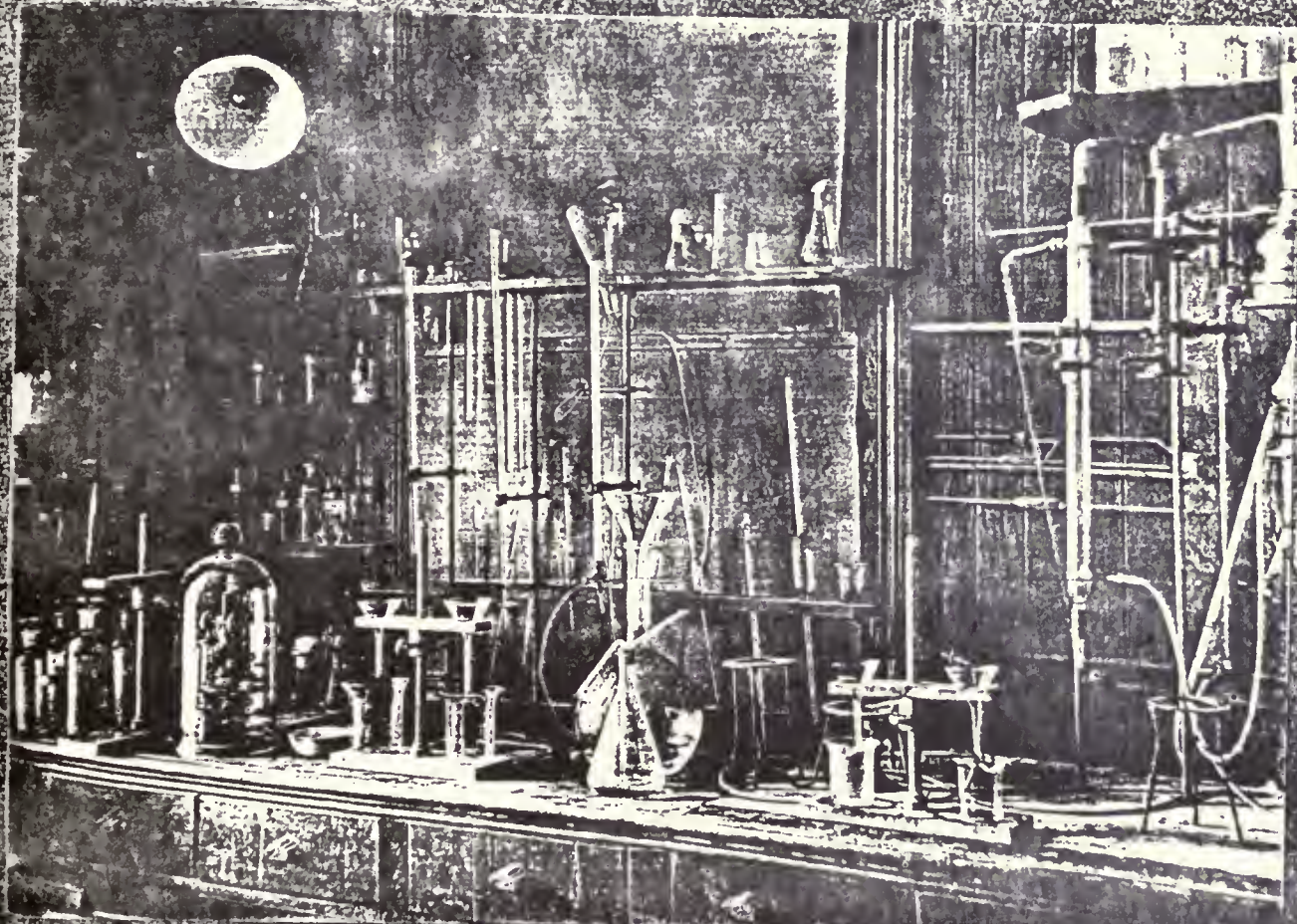
* See Bibliography, p. 135, #15 and p. 124.

Transcriber: Marie Guillemin
Final Typist: Beverly Heinrichs

Appendix

Enology Laboratory, Berkeley	116
Description of Division of Viticulture, Professor L. Bonnet <u>El Rodeo</u> , 1922	117
Description of Yolo County Vineyards - <u>California Grape Grower</u> , March 1, 1922	118
Student Labor Day, <u>El Rodeo</u> , 1936	119
Honorary Life Membership in American Society of Enologists	120
Winkler Retires, <u>Woodland Daily Democrat</u> , March 1962	121
Program for Retirement Dinner	122
Winkler Retirement Dinner - <u>Wines & Vines</u> , March, 1962	123
Yolo County in Words and Pictures, <u>Woodland Daily Democrat</u> , 1926	124
Professor F. T. Bioletti Retires - <u>Wines & Vines</u> , August 1935	125





Laboratory of Enology

This photograph, probably taken in the early 1900's in Budd Hall on the UC Berkeley campus, shows equipment used in early wine research. The original photograph is part of a growing collection now housed in the Special Collections Department of the University Library at Davis.

RODEO 1922

Division of Viticulture

THE Division of Viticulture of the University at Davis has two main objects in view—teaching and research. Never before have the classes been so large as they are this term. They are another proof of the great development of grape growing in this State. There are 31 University students and 49 University Farm students, a total of 80 students taking Mr. Bonnet's courses. The practical work is given in the six experimental vineyards, comprising forty-two acres, of which more than two-thirds are already planted. Vineyard No. 1, the largest, contains a collection of over three hundred varieties of grapes, and is used for teaching and for research.



PROF. L. BONNET

Many experiments have been completed in this vineyard, where vines are grown on their own roots, and also on resistant stocks. Vineyard No. 3 has been used for irrigation experiments, which have not given any results, owing to the stealing of grapes before picking time. Vineyard No. 5 is a mother vineyard of resistant stocks. Its small size at the time when there is a big demand for certain resistant stocks has made necessary the planting of a new resistant mother vineyard. Vineyard No. 6 planted last year will be entirely devoted to experimental purposes. In order to avoid the stealing of grapes and to obtain results it will be surrounded with an unclimbable fence.

The products of the vineyards are sold as dried grapes, and the brush sold as cuttings or as rootings the following year:

The Division of Viticulture sends information by correspondence, and will be glad to show the vineyards to those interested.

The staff of this Division at Davis comprises Mr. L. O. Bonnet, who is in charge of the Division; Dr. A. J. Winkler and Mr. G. Barovetto.

rape culture is recent
Upper Sacramento
transformation. Tho
ings, and intensive fe
ed when wheat wa
this article, we in
ape industry in the
is was discussed in
THE GROWER) as
acres in these nine
the acreage will be
acres; next comes
d to table grapes.

olo County, which
about 3,000 acres in
grapes.

about 75 per cent of
largely in the fer
than half of this ac
and table grapes.
add as Woodland S
ly profitable. Th
Bouschet, Serin
are popular table
Davis is located th
one of the subject
Division of Viticult
teaching, research
are informed tha
are this term. T
pe-growing in the
iversity Farm stud
Bonnet's courses.

the six experimen
than two-thirds are
vineyard No. 1, the
of 350 varieties of
d experiments have
own on their own
has been used for
suits; owing to the
vineyard on resista
d for certain resist
d acres of resistant
will be devoted to
interference and to
able fence. The pro
brush sold as cuttin
Division of Viticult
will be glad to sho

P

the vineyards of Plac
throughout the fruit
sixteen miles from
horticultural comm
in the following fact
e main acreage is in
nd west of Roseville.
minate in the district
wade to the east of
the American Rive
uperior are the princ
are vineyards of wine
n, and also in the Pe
Loomis, northeast
n, Newcastle and Aub
are scattered vineyard
for more acres of ta
in the Calif distri
grapes, principally To
so raised in the dist
son, which lies north
districts just mentio
Thompson and Mal
t principal wine gra
are Mataro, Zinfand
of table grapes, the f
predominate: Thomp
Malaga, Tokay, Musca
uperior.

a year (1921) the ac
ted in 93 acres. As y
figures on this se
en what

Grape culture is receiving much attention in the leading counties of the Upper Sacramento Valley, which is rapidly undergoing a remarkable transformation. The large ranches are being broken up into smaller holdings, and intensive farming is taking the place of the obsolete methods used when wheat was king in the great Sacramento Valley.

In this article, we intend to summarize briefly the development of the grape industry in the counties which stretch from Sacramento County (which was discussed in the December issue of the CALIFORNIA GRAPE GROWER) as far north as Shasta County. Twenty-two thousand acres in these nine valley counties are devoted to grapes, and this spring the acreage will be materially increased. Raisin varieties lead with 11,265 acres; next comes 9,345 acres of wine grapes, and 2,050 acres are planted to table grapes.

YOLO COUNTY

Yolo County, which adjoins Sacramento County on the northwest, has about 3,000 acres in wine grapes, 1,555 in raisin grapes and 500 in table grapes.

About 75 per cent of the county consists of level land. Grapes are found largely in the fertile districts surrounding Woodland. A little more than half of this acreage is devoted to wine grapes, the balance to raisin and table grapes. The seedless raisin, produced and known to the world as Woodland Sultanas, generally is oil-bleached and has proved uniformly profitable. The varieties for wine making are the Zinfandel, Alicante Bouschet, Serine and Burger. Tokays, Cornichons and Emperors are popular table varieties.

At Davis is located the University Farm of 780 acres, where viticulture is one of the subjects included in the courses offered to students. The Division of Viticulture of the University Farm has three main objects—teaching, research and extension.

We are informed that never before have the classes been so large as they are this term. This is another proof of the great development of grape-growing in the State. There are 31 University students and 19 University Farm students, a total of 80 students taking Professor L. O. Bonnet's courses. The practical work is given in the laboratory and in the six experimental vineyards comprising 42 acres, of which more than two-thirds are already planted.

Vineyard No. 1, the largest (over 19 acres) contains a collection of about 350 varieties of grapes, and is used for teaching and research. Several experiments have been completed in this vineyard, where vines are grown on their own roots and also on resistant stocks. Vineyard No. 3 has been used for irrigation experiments, which have not given any results; owing to the stealing of grapes before picking time. The other vineyard on resistant stocks (No. 5) is rather small, and the big demand for certain resistant stocks makes necessary the planting of several acres of resistant mother vines. Vineyard No. 6, planted last year, will be devoted to experimental purposes entirely. In order to avoid interference and to secure results, it will be surrounded by an incalculable fence. The products of the vineyards are sold as dried grapes and the brush sold as cuttings or as rootings the following year.

The Division of Viticulture sends out information by correspondence, or will be glad to show the vineyards to those interested.

PLACER COUNTY

The vineyards of Placer County, which cover 6,000 acres, are scattered throughout the fruit districts from the southern boundary of the county, sixteen miles from Sacramento, to Colfax on the east. C. K. Turner, horticultural commissioner and State quarantine guardian, has given us the following facts about the grape industry of Placer County:

"The main acreage is in the district east and west of Roseville. Wine grapes predominate in the district round Roseville, while to the east of this town towards the American River, Cornichon and Emperor are the principal varieties. There are vineyards of wine grapes near Loomis, and also in the Penryn district. From Loomis, northeast through the Penryn, Newcastle and Auburn districts, there are scattered vineyards of from one to ten or more acres of table grapes. Again in the Colfax district there are table grapes, principally Tokay. Grapes are also raised in the district tributary to Lincoln, which lies north and west of the districts just mentioned; these are chiefly Thompson and Malaga.

"The principal wine grapes in the county are Mataro, Zinfandel and Mission. Of table grapes, the following varieties predominate: Thompson, Rose of Peru, Malaga, Tokay, Muscat, Cornichon and Emperor.

"Last year (1921) the acreage set out amounted to 93 acres. As yet I have no definite figures on this season's planting, but from what information I have I think the planting will be about the same as

last year. Grapes marketed during the season of 1921 were 143,000 and 3,599 tons in lugs."

YUBA COUNTY

Yuba County has about 2,900 acres in vines, of which 1,000 are bearing and 910 non-bearing. The 1921 production was about 1,560,000 wine grapes, 750 raisin grapes and 150 table grapes. On account of late spring frosts, the 1921 crop of all varieties was cut to a great extent of normal.

George W. Harney, horticultural commissioner of Yuba County, sends this interesting account of the development of the grape in the county:

"There has practically been no new plantings of wine grapes in Yuba County for many years, and much of the wine grape acreage is in the best of condition. The very low price of wine grapes prevailed before the days of prohibition is responsible for the decline. No wine grapes have reached a high price, some rehabilitation of old vineyards is being undertaken, and some new plantings are being made. Frenchmen who came to the mines in Yuba County in the days of the gold rush planted wine-grape vineyards, and Yuba has been famous for grape growing ever since. Flourishing grapevines gave Yuba its name. The Yuba River was named Uvas Silvestres by Spanish explorers in 1825, from the wild grapes festooning the trees on the banks of the stream. The name was later corrupted to Yuba; when the country was formed the name Yuba was adopted. One of the famous old-time vineyards, of which about 130 acres of vines of various varieties is still in condition, is the Ramon vineyard near Camptonville, at an elevation of 2,500 feet. It has a beautiful and picturesque setting in the high hills of the Sierras.

"Raisin grape—Thompson Seedless—culture is assuming fair proportions in Yuba. The present acreage, about 1,600 acres, has been planted within the past five years. The new vineyards are in fine condition and give promise of large yields. Some of the grape growers make a very fine quality of white "dry" "grape strictly for their own use.

"The seedless grape vineyards are located in the District of Loma Rica, just north of Marysville, in Loma Rica colony—a district of foothills being settled by Iowa people, and a new acreage near Marysville, in the southern part of the county.

"Professor Bioletti of the University of California has arranged to establish a vineyard experiment station at Browns Valley, in the foothills, about fourteen miles east of Marysville, where vines are being tested with a view of determining varieties best suited to the section, especially fine table and raisin sorts."

SUTTER COUNTY

Sharing honors with the peach, the Thompson seedless grape has done much to make Sutter County famous. From a few cuttings of this grape by a man named William Thompson, this valuable crop has developed in a little over a decade to one of California's leading industries. Seedless grape of commerce, known as the Thompson seedless, was first grown in this country in Sutter County. Its potential value is being constantly recognized and extensive plantings were made as rapidly as cuttings could be procured. Today over 7,000 acres are devoted to raisin grapes in Sutter County, which is surrounded by the Sacramento and Feather Rivers. The soil of the county is largely river-matrix, a wash of a thousand years from the Sierra Nevada and Coast Range Mountains.

Excellent prices are received for both the seedless raisins and green grapes. An acre of Thompson vines produces from five to ten tons of green grapes. Many varieties of table and wine grapes, including the well-known Zante currants, are grown in this county.



The Thompson Seedless grape was first grown in Sutter County



ARCH BATHURST



LABOR DAY

Adopting the motto "To leave nothing undone," 800 students and faculty ushered in the 1936 Labor Day on February 29, with picks and shovels flying.



Outstanding projects of the event which occurs every four years, were excavation of the new swimming pool, creation of an arboretum on the banks of old Putah Creek and construction of walks in the area in front of the Chemistry building.

Under the direction of the coeds and women faculty, a banquet was served on the football field at noon, followed later in the afternoon by the student-faculty baseball game. The student team scored a victory, the first in the history of Labor Day games. Festivities concluded with a dance in the gym in the evening.

The police squad functioned throughout the day, treating radical faculty and student non-workers to frequent dips in the irrigation tank.

When work ceased in the afternoon, the newly excavated swimming pool was filled with water, and faculty and students alike ended the day with a muddy bath.

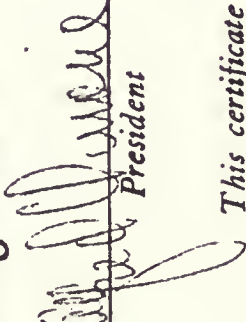
AMERICAN SOCIETY OF ENOLOGISTS



This certifies that

Albert J. Winkler

was duly elected a **Honorary Life Member** *of the Society on*
June 26, 1965 *and is entitled to the rights and privileges*
pertaining thereto.



President



Secretary

This certificate is issued subject to the provisions of the by-laws and must be presented to the Board of Directors immediately upon termination of membership.

UCDer Retires



TO RETIRE—Dr. Albert J. Winkler, former chairman of the viticulture department of the University of California at Davis, is to retire on December 31 after 41 years of teaching and conducting major grape growing research projects. At a recent Davis dinner in his honor it was announced that a scholarship had been established in his name. Dr. Winkler is shown above in his office at the University.

Viticulture Researcher

UCD's Professor Winkler Retiring

DAVIS — Dr. Albert J. Winkler, former chairman of the department of viticulture at the University of California at Davis and an outstanding researcher in the grape production field, is to retire at the end of this year. Dr. Winkler will continue a number of current projects this year and hopes to travel next year following his retirement.

Dr. Winkler who was born in Texas in 1894, graduated from the University of Texas in 1918. He received his M.A. from the University of Missouri and Ph.D. from the University of California, Berkeley, in 1921.

He came to the Davis campus in 1921 upon the completion of his doctorate work at Berkeley. In 1935 he became chairman of the division of viticulture in the experiment station. He continued to serve as chairman until 1957.

GRAPE STUDY

Over the years at Davis his principal work has been devoted to study of the California grapes. Dr. Winkler first worked on thinning practices and later on maturity studies and studies relating climate to quality of both wine and table grapes.

His study and experiments were largely responsible for the basis of current cultural practices. He showed that severe pruning markedly reduced the germinability of the pollen and the set of normal berries. This information had not previously been known.

During the 41 years he has spent on the Davis campus, Dr. Winkler wrote a number of articles for bulletins, circulars and journals. His latest literary accomplishment is completion of a book designed for the grape industry, *General Viticulture (Grape Growing)*. The book has just gone to press and will be available this fall.

Because of his accomplishments in the grape industry, and the high regard with which he has been held by his colleagues, Dr. Winkler, in 1957, was selected as the annual faculty research lecturer.

Each campus of the University has a faculty lecturer for the year who is chosen by the campus staff. Dr. Winkler delivered his faculty lecture on March 25, 1957, on *The Relation of Leaf Area and Climate to Vine Performance and Grape Quality*.

Being chosen as faculty lecturer is considered the highest honor the University staff can bestow on a member.

For his contributions in the field of teaching and research related to viticulture and enology, he was given a merit award in 1959 by the American Society of Enologists.

Recently while taking part in the February 13 Grape Day at Lodi he was honored and presented a gift by growers and industry representatives.

Hanging in Dr. Winkler's office is a mark of the high esteem with which he is held by the University Extension service personnel. Knowing of his retirement, farm advisors in the 22-county area where grapes are grown commercially had a plaque made showing their appreciation for the efforts of Dr. Winkler on behalf of extension personnel.

PAY TRIBUTE

On March 1 more than 300 people met in the new assembly hall on the Davis campus to honor Dr. Winkler on his coming retirement. Toastmaster of the dinner, Emil M. Mrak, chancellor of the Davis campus, announced that an Albert J. Winkler scholarship had been established with well over \$1,000 contributed at that time.

Honoring Dr. Winkler were Freeman Mills of Lodi, a former student; M. A. Ameringer, viticulture department chairman; James R. Douglas, chairman of the budget committee on which Dr. Winkler served for seven years; H. P. Olmo, research geneticist; and C. B. Hutchinson, college of agriculture professor.

Among the guests attending the dinner were former University president and Mrs. Robert Gordon Sproul.

Dr. Winkler has said that he will continue to live in Davis, but hopes to start seeing a great deal more of the country beginning next year.

While his active years as a teacher and research worker formally end this year, Dr. Winkler will continue his studies at a more leisurely pace and no doubt continue to make contributions to his chosen field.

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF VITICULTURE AND ENOLOGY
DAVIS, CALIFORNIA

Dinner Honoring Professor and Mrs. A. J. Winkler
March 1, 1962
New Assembly Hall

Reception -- 6:30 to 7:30

MENU

Hors d'oeuvre	Dry Sherry, L. M. Martini
Seafood Louis	Sylvaner, 1960, Beaulieu Vineyard
Roast Top Sirloin of Beef	Pinot noir, 1957, Inglenook Vineyard
Potatoes Parisienne, Asparagus	
Baked Alaska	Triple Cream Sherry, Cresta Blanca
Coffee	

PROGRAM

Chancellor E. M. Mrak -- Toastmaster

Quartet for Clarinet and Strings Carl Stamitz
Allegro Poco Moderato, Romance, Allegro

Sidney Griller-1st violin	Jerome Rosen-clarinet
Colin Hampton-cello	Willard Tressler-2nd violin

Introductions

As I knew him:

A teacher -- A. Freeman Mills
A department chairman -- Maynard A. Amerine
On the Budget and Interdepartmental Relations Committee --
J. R. Douglas
A viticulturist in the field -- André Tchelistcheff
A research worker -- Harold P. Olmo
From the boss's point of view -- C. B. Hutchison

Announcement of the Winkler grant-in-aid fund, presentation of check to
Chancellor, and presentation of special wines to Professor Winkler --
A. D. Webb

Remarks by A. J. Winkler

CALIFORNIA VINTNERS TURN OUT EN MASSE TO HONOR DR. A. J. WINKLER



► SHOWN here are some of the more than 60 wine industry people who joined 200 others in a dinner honoring Dr. A. J. Winkler, former chairman of the University of California's Department of Viticulture and Enology.

The dinner, held on the Davis campus of the University, featured a series

of short talks on the "as I knew him" theme, and included remarks on Winkler as "a teacher" by A. Freeman Mills; as "a department chairman" by Maynard Amerine; as "a viticulturist in the field" by Andre Tschelischteff; and as "a research worker" by Dr. H. P. Olmo.

In addition, former Dean C. B.

Hutchinson described Winkler "from the boss's point of view," and J. R. Douglas told of Wink's work "as a fellow committee member."

With Chancellor Emil Mrak as toastmaster, the evening was a fine tribute to a man highly regarded in both academic and industry circles.

ASE Committees Named for Meeting

Ted Yamada has announced the appointment of committees to arrange the many events planned for the 12th annual Open Meeting of the American Society of Enologists, scheduled for the Miramar Hotel in Santa Barbara.

Exhibits chairman is Dr. James F. Guymon; Ladies program committee includes Chiyo Yamada, Sally Crawford and Charlene Guymon; Banquet managers are William Gilchrist and Dick Davis; Wine selection chairman is W. E. "Ted" Kite, Champagne reception committee includes Min Okino and Michael Bo; Brandy tasting will be handled by Zeev Halperin; the golf tournament will be handled by Evins Naman; and registration, as always, will be under the charge of Ruth Bo.

Preparations for the Open Meeting are now going forward rapidly, according to Yamada, and a record attendance is anticipated.

As usual, the meeting will feature an exhibit of supplies and equipment.

San Joaquin Growers Elect Nylander



KEITH NYLANDER

Keith Nylander, general production manager of Di Giorgio Winery, was elected president of the San Joaquin Valley Wine Growers Assn. at the group's annual meeting last month. Nylander was previously 1st vice. Paul Huber of

Gallo was named 1st vice president and Gordon Bordson of Roma was re-elected 2nd vice president.

Other officers selected include Vas Gomer of Argun Wine Co., treasurer; and Evins Naman of Wine Institute, secretary.

Educator Named in Wine Award

Dr. Agnes Fay Morgan will be the recipient on March 21 of the first \$1000 award offered by the Society of Medical Friends of Wine.

Dr. Morgan is being honored for her research and knowledge of the chemistry of wines and their role in animal and human nutrition.

The winner will be guest speaker at the Society's annual dinner in San Francisco.

Ralph Loses Agricultural Post

Advocates of agricultural marketing orders lost one of their strongest supporters in the U. S. Department of Agriculture last month when Dr. James T. Ralph was relieved of his job as assistant Secretary of Agriculture and relegated to a post in the Philippines.

Ralph, formerly California director of agriculture, was described as an "evangelist" in advocating that agricultural industries find answers to their problems via the "self-help" route of marketing orders.

His post in Washington has been taken over by John P. Duncan, Jr., previously an assistant to Ralph.

Secretary of Agriculture Orville L. Freeman declared his department will continue to press vigorously for expansion of the marketing order program.

Browne-Vintners Sales Manager

E. Walter Neihoff last month was elected national sales manager of Browne-Vintners Co. (N.Y.). He succeeds H. L. Hershfield, now director of marketing.

Browne-Vintners represents a wide range of foreign wines, including Barton & Guestier (B&G), Mumm's and a number of highly regarded Bordeaux and Burgundy chateau wines.

Rodkin Great Western Sales Mgr.



CHARLES RODKIN

Charles Rodkin last month became general sales manager for the production of The Pleasant Valley Wine Company, now a division of The Taylor Wine Company. Rodkin, who has been connected with CVA for 18 years and was

vice president of this Schenley unit during the past seven years, is headquartered in New York.

Bob Andrade to Leave WAB

Robert W. Andrade, national promotion manager, is on terminal leave from WAB, and at press time was negotiating with a number of wineries for a brand promotion post.

Andrade, who had been with WAB 7½ years, was previously in charge of merchandising for Roma-Cresta Blanc.

His home is in San Rafael, California.

SUPPLIERS

Western Packaging Exposition

The 1962 Western Packaging Exposition, scheduled for San Francisco July 17-19, appears headed for a record in the number of exhibitors, a release issued last month declared.

In addition, according to Alex Donald, president of Kings Sales and Engineering Co., who is in charge of arrangements, plans are going forward for the city fathers of San Francisco to honor the western packaging industry during the period of the exposition.

MANY VARIETIES OF GRAPES ADD TO COUNTY'S RICHES

DR. A. J. WINKLER

University of California Branch, College
of Agriculture, University Farm,
Davis, Yolo County

YOLO County has held a very prominent position in California in the development of the vineyard industry. It is said that the first successful raisin vineyards of California were in the vicinities of Woodland and Davis. According to G. Eisen, raisins were produced in Yolo County as early as 1867 and in 1873 the larger part of the California raisin crop, consisting of 6000 boxes, was produced in this county. Because of the possible high yields and weather conditions during the drying season, this region is well adapted to the production of oil dipped, light colored raisins and at present most of the raisins of Yolo County are of this type.

Among Sacramento Valley counties, Yolo ranks third in raisin grape bearing acreage, and second in table and wine grape bearing acreage. It ranks third in total acreage of grapes in the Sacramento Valley.

Instruction at Davis

Most of the instructional and investigational work in viticulture of the University of California is centered at the University Farm at Davis. The Division of Viticulture is one of the oldest units of the College of Agriculture. Work on problems of the grape growers was started by Professor Hilgard nearly fifty years ago. Instruction in viticulture was organized by Professor Hilgard in 1889. This course of instruction to university students has continued uninterrupted for thirty-six years.

The work of the division consists, like that of most of the divisions, of two general types—investigation and instruction. The extension activities of the division are but a phase of instruction.

To facilitate the instruction work a ten-acre vineyard of the more important commercial varieties of table grapes is being developed. When complete, this vineyard will permit the student to actually go through all of the cultural and vineyard operations met with from the time of making cuttings for planting to the care of a mature eight-year-old vineyard. This development is now in its fourth year.

The field of viticulture is large. There are many problems. The earlier work of



THREE BUNCHES OF SWEETS

Black Monukka Grapes Grow in Big
Bunches at Davis.

investigation was concerned principally with problems of vine pruning and disease and pest control. It started before 1880 with a study of phylloxera and the Anaheim disease, and about 1890 with vine pruning. More recently the investigational work has been expanded to include the testing of new varieties of grapes, improvement by hybridization, the planting and handling of vineyards, the harvesting and packing of grapes, and the treatment of grapes with sulfur dioxide for shipment.

Many Varieties Tested

In the variety test plots at Davis there are approximately 200 varieties of "juice grapes," 100 varieties of table grapes, seven varieties of raisin grapes, ninety varieties of "so-called Eastern or slip-skin" grapes, and thirty varieties of phylloxera resistant vines. The pruning plots cover some thing like five acres. In these studies various types of pruning are being tested out on forty-four varieties. Six hundred thirty vines of Muscat are under test to determine the reliability of "bud selection" as a means of increasing quality and yield.



BLACK CORINTH GRAPE VINE YIELDING BIG

Wines and Vines
August 1935

Prof. F. T. Bioletti Retires

On July 21, Prof. Frederic T. Bioletti retired from active work as the head of the Viticultural Department at the University of California. He has earned a rest from his post after a long and splendid record for valuable work accomplished, and even on the side line will continue to take an interest in our industry.

Prof. Bioletti received his early training in Sonoma and Napa wineries and later was associated with Charles A. Wetmore, Frederico Pohndorff and Captain McIntyre in Tehama and Alameda County plants. At the University of California in the '80's he worked with Professors E. H. Hilgard, E. L. Green, E. J. Wickson, J. Le Conte and Osterhaut. In 1901, Prof. Bioletti left for Cape Colony, where for three years he was an instructor at the College of Elsberg. Then came a three months' visit to Algeria, France and Germany in 1904. Four years later he established a vineyard at Hollister and in 1909 he again took up his work at the University of California. A few years ago he revisited Algeria and also studied grape growing in Morocco and Tunisia, sending several excellent articles to this publication based on his investigations. Elsewhere in this issue we are reprinting Prof. Bioletti's excellent article on "Winemaking on a Small Scale." He is the author of a number of valuable bulletins and publications brought out by the University of California.

BIBLIOGRAPHY

OF MAJOR RESEARCH PAPERS 1923 - 1971

1. Winkler, A. J. 1923. A study of the internal browning of the Yellow Newtown apple. Jour. of Agr. Res. XXIV(2):165-184.
2. Overholser, E. L., A. J. Winkler and H. E. Jacob. 1923. Factors influencing the development of internal browning of the Yellow Newtown apple. Calif. Exp. Sta. Bul. 370:1-40.
3. Winkler, A. J. and H. E. Jacob. 1925. The utilization of sulfur dioxide in the marketing of grapes. Hilgardia 1(6):109-131.
4. Winkler, A. J. 1926. Some responses of Vitis vinifera to pruning. Hilgardia 1(20):526-543.
5. Winkler, A. J. 1926. The influence of pruning on the germinability of pollen and the set of berries in Vitis vinifera. Hilgardia 2(5):107-124.
6. Winkler, A. J. 1927. Some factors influencing the rooting of vine cuttings. Hilgardia 2(8):329-349.
7. Winkler, A. J. 1927. Improving the fruiting of the Muscat (of Alexandria) grape by less severe pruning. Proc. Amer. Soc. Hort. Sci. 24:157-163.
8. Winkler, A. J. 1928. The influence of position of buds on the development of clusters of Muscat of Alexandria and Molinera. Proc. Amer. Soc. Hort. Sci. 25:207-209.
9. Winkler, A. J. 1928. Berry thinning of grapes. Proc. Amer. Soc. Hort. Sci. 25:220-223.
10. Bioletti, Frederic and A. J. Winkler. 1928. Une nouvelle théorie de la taille. Revue de Viticulture 69:261-268.
11. Winkler, A. J. 1929. The effect of dormant pruning on the carbohydrate metabolism of Vitis vinifera. Hilgardia 4(6):153-173.
12. Winkler, A. J. 1930. Longer pruning and thinning as a means of producing better grapes. The Blue Anchor VII(3):8-9, 30-31.
13. Winkler, A. J. 1930. Berry thinning of grapes. Calif. Exp. Sta. Bul. 492:1-22.
14. Winkler, A. J. 1930. Berry thinning--Table grapes. The Blue Anchor VII(5):18-19, 37-39.
15. Winkler, A. J. 1931. The relation of number of leaves to size and quality of table grapes. Proc. Amer. Soc. Hort. Sci. 27:158-160.

16. Winkler, A. J. 1931. Thinning to improve the quality of grapes. The Blue Anchor VIII(3):9-11, 27-29.
17. Bioletti, Frederic T. and A. J. Winkler. 1932. La coulure et la taille. Revue de Viticulture LXXVI(1960):37-40.
18. Winkler, A. J. 1931. Pruning and thinning experiments with grapes. Calif. Exp. Sta. Bul. 519:1-56.
19. Winkler, A. J. 1932. Maturity tests for table grapes. Calif. Exp. Sta. Bul. 529:1-35.
20. Winkler, A. J. 1932. Why is the Balling test alone not an adequate measure of maturity of table grapes? The Blue Anchor IX(6):7, 24-25.
21. Winkler, A. J. 1932. The lateral movement of elaborated foods in the grape vine. Proc. Amer. Soc. Hort. Sci. 29:335-338.
22. Winkler, A. J. 1932. The Balling-acid ratio as a means of measuring the maturity of table grapes. The Blue Anchor IX(7):8, 30.
23. Winkler, A. J. 1933. The treatment of frosted grape vines. Proc. Amer. Soc. Hort. Sci. 30:253-257.
24. Bioletti, Frederic T. and A. J. Winkler. 1934. Density and arrangement of vines.. Hilgardia 8(6):179-195.
25. Winkler, A. J. 1934. Pruning vinifera grapevines. Calif. Agr. Ext. Serv. Cir. 89:1-68.
26. Winkler, A. J. 1936. Temperature and varietal interrelations in Central-Western Europe and Algeria. Wines and Vines 17(2):4-5.
27. Winkler, A. J. and W. O. Williams. 1936. Effect of seed development on the growth of grapes. Proc. Amer. Soc. Hort. Sci. 33:430-434.
28. Winkler, A. J. and M. A. Amerine. 1937. What climate does. The Wine Review V(6):9-11; V(7):9-11, 16.
29. Winkler, A. J. and E. M. Shemsettin. 1937. Fruit-bud and flower formation in the Sultanina grape. Hilgardia 10(15):569-611.
30. Winkler, A. J. 1938. The effect of climatic regions. The Wine Review 6(6):14-16, 32.
31. Winkler, A. J. and M. A. Amerine. 1938. Color in California wines. I. Methods for measurement of color; II. Preliminary comparisons of certain factors influencing color. Food Research 3(4):429-447.
32. Winkler, A. J. and W. O. Williams. 1938. Carbohydrate metabolism of Vitis vinifera: Hemicellulose. Plant Physiology 13(2):381-390.
33. Winkler, A. J. and W. O. Williams. The heat required to bring Tokay grapes to maturity. Proc. Amer. Soc. Hort. Sci. 37:650-652.

34. Amerine, M. A. and A. J. Winkler. 1940. Maturity studies with California grapes. I. The Balling-acid ratio of wine grapes. Proc. Amer. Soc. Hort. Sci. 38:379-387.
35. Amerine, Maynard A. and A. J. Winkler. 1941. Color in California wines. IV. The production of pink wines. Food Research 6(1): 1-14.
36. Amerine, M. A. and A. J. Winkler. 1942. Maturity studies with California grapes. II. The titratable acidity, pH, and organic acid content. Proc. Amer. Soc. Hort. Sci. 40:313-324.
37. Amerine, M. A. and A. J. Winkler. 1943. Grape varieties for wine production. Calif. Agr. Exp. Sta. Cir. 356:1-15.
38. Amerine, M. A. and A. J. Winkler. 1944. Composition and quality of musts and wines of California grapes. Hilgardia 15(6): 493-673.
39. Jacob, H. E. and A. J. Winkler. 1945. Considerations in vineyard expansion. The Blue Anchor 22(1):13-16.
40. Winkler, A. J. and W. O. Williams. 1945. Starch and sugars of Vitis vinifera. Plant Physiology 20(3):412-432.
41. Amerine, M. A. and A. J. Winkler. 1947. The relative color stability of the wines of certain grape varieties. Proc. Amer. Soc. Hort. Sci. 49:183-185.
42. Winkler, A. J. 1948. Maturity tests for table grapes -- The relation of heat summation to time of maturing and palatability. Proc. Amer. Soc. Hort. Sci. 51:295-298.
43. Winkler, A. J. (edited by). 1949. Pierce's disease investigations. Hilgardia 19(7):207-264.
44. Winkler, A. J. 1949. Grapes and wine. Economic Botany 3(1):46-70.
45. Winkler, A. J. 1949. Why the late maturing of table grapes in 1946-48? The Blue Anchor 26(1):10-11, 36.
46. Winkler, A. J. (Revised by). 1950. Grape growing in California. Calif. Agr. Ext. Serv. Cir. 116:1-80.
47. Winkler, A. J. 1953. Producing table grapes of better quality. The Blue Anchor 30(1):28-31.
48. Weaver, Robert J. and A. J. Winkler. 1952. Increasing the size of Thompson Seedless grapes by means of 4-chlorophenoxyacetic acid, berry thinning and girdling. Plant Physiology 27(3):626-630.
49. Winkler, A. J. 1954. Effects of overcropping. Amer. Jour. Enol. V:4-12.
50. Winkler, A. J. and Lloyd H. Lamouria. 1956. Machine harvesting of grapes. Calif. Agr. 10(5):9, 14.

51. Winkler, A. J. 1958. The Relation of Leaf Area and Climate to Vine Performance and Grape Quality. *Americ. Jour. Enol.* 9: 10-23.
(15th Annual Faculty Research Lecturer, U C Davis).
52. Winkler, A. J., L. H. Lamouria and C. R. Kaupke. 1958. Harvester for Grapes. *Western Fruit Grower*.
53. Winkler, A. J. 1959. Spacing and Training Grapevines. *Calif. Agric. Ext. Service, Leaflet 111*.
54. Winkler, A. J. 1959. The Effect of Vine Spacing at Oakville on Yield, Fruit Composition, and Wine Quality. *Amer. Jour. Enol. Vitic.* 10: 39-43
55. Winkler, A. J. 1960. Promising New Areas for Premium Quality Wine Grapes. *Calif. Agric.* 14: 2-3.
56. Winkler, A. J. 1962. General Viticulture. University of California Press, Berkeley. p.633.
57. Amerine, M. A. and A. J. Winkler. 1963. California Wine Grapes: Composition and Quality of their Musts and Wines. *Calif. Agric. Exp. Sta. Bul.* 794.
58. Winkler, A. J. 1969. Effect of Vine Spacing in an Unirrigated Vineyard on Vine Physiology, Production and Wine Quality. *Amer. Jour. Enol. Vitic.* 20: 7-15.
59. Winkler, A. J. 1971. Growth and Fruiting of the Mission Grapevine Under Conditions of Non-Competition. (The Winkler Vine during its First Ten Years). *Amer. Jour. Enol. Vitic.* 22: 231-233.

Bibliography
 Additional Research Papers 1925-1967

1. Winkler, A. J. and H. E. Jacob. Treating grapes with sulfur dioxide for shipment. *Blue Anchor* 2(12):28-29. 1925.
2. Winkler, A. J. Many varieties of grapes add to county's riches. *Woodland Daily Democrat*, Yolo County in Word and Picture. p. 20. 1926.
3. Bioletti, F. T. and A. J. Winkler. La Taille de la vigne: Theorie et pratique. *Revue de Viticulture* 70:154-157. 1929.
4. Winkler, A. J. Grape maturity studies. *Pacific Rural Press* 122(5):104.1931.
5. Winkler, A. J. Influence of regional and seasonal conditions on the composition and eating quality of table grapes. *The Blue Anchor* 9(5):11, 26, 28-29. 1932.
6. Winkler, A. J. What to do to frosted grapevines. *Calif. Grape Grower* 15(4):4-5. 1934.
7. Winkler, A. J. Making red wines in Algeria. *The Wine Review* 3(7):14-15,40. 1935.
8. Winkler, A. J. Table grape production in West-Central Europe and Algeria. *The Blue Anchor* 12(10):8-10, 20. 1935.
9. Winkler, A. J. Observations on wine production in Europe and Algeria.
 Part I. *Wines & Vines* 16(7):4-5. 1935.
 Part II. *Wines & Vines* 16(8):4-5. 1935.
10. Winkler, A. J. Grape varieties for dry wines.
 Part I. *The Wine Review* IV(5):6-7, 22-23. 1936.
 Part II. *The Wine Review* IV(6):8-10. 1936.
11. Winkler, A. J. Ripening changes in grapes. *The Wine Review* 4(7):6-7. 1936.
12. Winkler, A. J. Harvesting and transporting grapes. *The Wine Review* 4(8):14-16. 1936.
13. Winkler, A. J. Ripening, harvesting and transportation of wine grapes.
 Part I. *Wines & Vines*. 17(9):28-29. 1936.
 Part II. *Wines & Vines* 17(10):22-23. 1936.
14. Winkler, A. J. Ripening, harvesting and transportation of wine grapes.
The Blue Anchor 13(11):8, 19, 21. 1936.
15. Winkler, A. J. Harvesting wine grapes. *Harper's Wine & Spirit Gazette*, London. pp. 705, 707. 1936.
16. Winkler, A. J. and H. P. Olmo. Chasselas doré. *Wines & Vines* 18(1):4-5.1937.
17. Winkler, A. J. and H. P. Olmo. Sylvaner (Franken Riesling). *Wines & Vines* 18(2):4-5. 1937.

18. Winkler, A. J. and H. P. Olmo. The Semillon. *Wines & Vines* 18(3):4-5. 1937.
19. Winkler, A. J. and H. P. Olmo. Refosco (Crabb's Black Burgundy). *Wines & Vines* 18(4):4-5. 1937.
20. Winkler, A. J. and H. P. Olmo. The Saint Macaire. *Wines & Vines* 18(5):4-5. 1937.
21. Winkler, A. J. and H. P. Olmo. Cabernet Sauvignon. *Wines & Vines* 18(6):9-11. 1937.
22. Winkler, A. J. and H. P. Olmo. The Valdepenas. *Wines & Vines* 18(7):4-5. 1937.
23. Winkler, A. J. and H. P. Olmo. The Trousseau grape. *Wines & Vines* 18(8):4-5. 1937.
24. Winkler, A. J. Factors determining wine quality. *The Wine Review*. 5(9):8-11. 1937.
25. Winkler, A. J. and H. P. Olmo. Tinta Amarella. *Wines & Vines* 18(9):5. 1937.
26. Winkler, A. J. and H. P. Olmo. The Aleatico. *Wines & Vines* 18(10):4-5. 1937.
27. Winkler, A. J. and H. P. Olmo. Colombard (Sauvignon vert, by error). *Wines & Vines* 18(11):5, 23. 1937.
28. Winkler, A. J. and H. P. Olmo. The Muscadelle. *Wines & Vines* 18(12):5,24,1938.
29. Winkler, A. J. and E. H. Twright. Riesling Wine. *Wines & Vines* 19(3):5-7. 1938.
30. Winkler, A. J. and M. A. Amerine. Chianti Wine. *Wines & Vines* 19(4):4, 14. 1938.
31. Amerine, M. A. and A. J. Winkler. Sauternes. *Wines & Vines* 19(6):3-4. 1938.
32. Amerine, M. A. and A. J. Winkler. Angelica. *Wines & Vines* 19(9):5, 24. 1938.
33. Amerine, M. A. and A. J. Winkler. Brandy. *Wines & Vines* 19(10):3, 6. 1938.
34. Amerine, M. A. and A. J. Winkler. Burgundy. *Wines & Vines* 19(11):5-6. 1938.
35. Amerine, M. A. and A. J. Winkler. Champagne. *Wines & Vines* 19(12):5,15. 1938.
36. Amerine, M. A. and A. J. Winkler. Domestic Champagne. *Wines & Vines* 20(1):12. 1939.
37. Amerine, M. A. and A. J. Winkler. Waiter! Bring the wine. *Calif. Monthly*. pp. 14-15, 38-39. 1939.
38. Winkler, A. J. New home for wine research. *The Wine Review* 7(6):9-10. 1939.
39. Winkler, A. J. Factors influencing color. *The Wine Review* 8(1):6-8,24. 1940.
40. Winkler, A. J. Rehenzuchtung in Californian. *Das Weinblatt*, No. 8. 1939.
41. Winkler, A. J. Grapes and wines of California. *American Wine & Liquor Journal* 7(12):37, 54, 56, 58, 60. 1940.

42. Winkler, A. J. Grapes and wines. Wine & Liquor Retailer 7(7):58-59, 70-72. 1940.
43. Winkler, A. J. Meeting wartime demand for increased grape production in 1943 by pruning and thinning. Mimeo.:1-9. 1943.
44. Winkler, A. J. Converting table-grape Thompson Seedless vineyards to the production of raisins. Mimeo.:1-3. 1943; Calif. Cultivator 90(3):59, 87. 1943; Country Life Section, Sacramento BEE, Feb. 6, 1943.
45. Winkler, A. J. and A. D. Rizzi. Many table grape Thompson Seedless vineyards converted to raisin production should be thinned. Mimeo.:1-3. 1943; Calif. Cultivator 90(6):329. 1943.
46. Winkler, A. J. The work of the Division of Viticulture. Wines & Vines 25(12):41,44-45. 1944
47. Winkler, A. J., W. B. Hewitt, N. W. Frazier and J. H. Freitag. Pierce's disease of grapevines: its vectors, hosts, and control. Mimeo.:1-7. 1944.
48. Jacob, H. E. and A. J. Winkler. Limit grape plantings to good wine-grape varieties. Wines & Vines 26(1):14-16, 28. 1945.
49. Jacob, H. E. and A. J. Winkler. What grapes should be planted. Country Life Section, Fresno Bee, Issues of Jan. 9, 16 and 23. 1945.
50. Winkler, A. J. Grapes for the home garden. Calif. Citrograph 30(1):110, 112-113. 1945.
51. Winkler, A. J. The grape. Encyclopedia Britannica. 1945.
52. Winkler, A. J. Grape plantings during 1945. Wines & Vines 26(12):26-27. 1945
53. Winkler, A. J. Varieties and vineyard expansion. Mimeo.(presented and distributed at grape growers conferences):1-8. 1945.
54. Winkler, A. J. Pruning and allied vineyard operations. Mimeo:1-13. 1945.
55. Winkler, A. J. Pruning vinifera grapevines (Revised). Cir. 89:1-56. 1945.
56. Winkler, A. J. Recommendations for improving quality of grapes by using proper cultural operations on the vines. Calif. Agric. 1(5):1. 1947; Country Life Section, Fresno Bee, pp. 9. 1947.
57. Winkler, A. J. Pruning the yearling. The Grape Grower 1(6):20. 1947.
58. Winkler, A. J. Table grapes. Calif. Agr. 2(3):5-6. 1948.
59. Winkler, A. J. Grape thinning. Calif. Fruit and Grape Grower 2(6):24. 1948.
60. Winkler, A. J. Table grapes - relation of heat summation to time of maturing and palatability. The Blue Anchor 25(3):6, 38. 1948.
61. Winkler, A. J. Grape varieties and the fruit and vegetative characters used in their identification. Wine Technology Conference, Mimeo:8-14. 1948.
62. Winkler, A. J. Table grape quality factors. Calif. Agr. 3(5):9-10,15. 1949.

63. Winkler, A. J. Better Thompsons from past experience. *The Grower*. pp.7-10. 1949.
64. Winkler, A. J. Some effects of pruning and crop on grapes, particularly the effect of overcropping in the post-war years on time of maturing and fruit quality. *Wine Tech. Conf. Mimeo*:8-13. 1949.
65. Winkler, A. J. Character useful in identification of grape varieties. *Wine Tech. Conf. Mimeo*:14-20. 1949.
66. Winkler, A. J. Pitfalls of vine propagation. *Wines & Vines* 31(8):24. 1950.
67. Winkler, A. J. Grapes for a single purpose. *Wines & Vines* 32(4):67-68. 1951.
68. Winkler, A. J. Quality in Raisins. Presented at Grape Inst., Fresno, Calif. *Mimeo*:1-16. 1951.
69. Winkler, A. J. Reporting for the United States to VI Congrès International de la vigne et du vin. I. Section: Historique sommaire situation actuelle. Objectifs genereaux et mogeus de la reconstitution das vignobles. *Bull. l'Office International du Vin* 24(239):110-112. 1951; II. Section: Phytopathologue. La défense sanitaire et la protection des vignobles. *Bull. l'Office International du Vin* 24(243):134-140. 1951.
70. Winkler, A. J. Pruning of grapevines as related to capacity to produce. Report to Vitic. Research Com. Meeting. *Mimeo*. pp.2. 1951.
71. Winkler, A. J. Algunos antecedentes sobre lo filoxera y su control en los vinedos de California. *Mundo Agrario* 4(36)37-41. 1952.
72. Winkler, A. J. Grape standardization. *Wines & Vines* 33(6):11. 1952.
73. Winkler, A. J. Problems of the grape and wine industry in Argentina. *Amer. Soc. Enol. Proc.* pp. 3-6. 1952.
74. Winkler, A. J. Grape size and quality. *Calif. Agr.* 6(5):3. 1952.
75. Winkler, A. J. Growers' cultural practices determine quality in raisins. *Western Fruit Grower* 7(3):19-21. 1953.
76. Winkler, A. J. The effect of level of crop on the Balling-acid ratio of grapes. Report to Tech. Adv. Com. of Wine Inst. *Mimeo*. 1953.
- ~~77. Winkler, A. J. Grapes--The boom is over in California. *Amer. Fruit Grower* 74(1):22. 1954.~~
78. Winkler, A. J. Grapes - Mechanization in harvesting. Talk given before the Farm Machinery Conf. *Mimeo*. 5 pp. 1954.
79. Winkler, A. J. 1953 Pruning Experiments. Report to Wine Inst. TAC Meeting. *Mimeo*., 2 pp. 1954.
80. Winkler, A. J. Suggestions for improving the quality of 1954 wines. Report to Wine Inst. TAC meeting. *Mimeo*, 5 pp. 1954.
81. Winkler, A. J. Grapes. *Amer. Fruit Grower* 75(1):24. 1955.

82. Winkler, A. J. 1954. Some Recent Advances in the Field of Viticulture. Presented at the AAAS Meeting. Berkeley, Dec. 1954.
83. Weaver, R. J., A. J. Winkler, and S. B. McCune. Some Effects of 2,4-Dichlorophenoxy Acetic Acid and Related Compounds on the Grapevine. Amer. Jour. Enol. 9:126-138.
84. Winkler, A. J. 1958. Better Grapes for Wine. Amer. Jour. Enol. 9: 202-210.
85. Winkler, A. J. 1959. Pruning Grapevines. Calif. Agric. Ext. Service. Circular 477.
86. Winkler, A. J. and A. N. Kasimatis. 1959. Supports for Grapevines. Calif. Agric. Ext. Service.
87. Winkler, A. J. 1961. Kostensenkung im Weinbau (Reducing Cost in the Vineyard). Der Deutsche Weinbau. 1960-61: also in Die Wynboer 30: 17-19, 1961.
88. Lamouria, L. H., I. J. Szluka, H. L. Brewer and A. J. Winkler. 1962. Grape: Mechanical Harvesting. Calif. Agric. 16: 4-5.
89. Winkler, A. J. 1964. Other Areas of Investigation and Advance in California Viticulture. Wines and Vines 45(2): 28.
90. Winkler, A. J. 1964. Varietal Wine Grapes in the Central Coast Counties of California. Amer. Jour. Enol. Vitic. 15: 204-205.
91. Winkler, A. J. 1967. New Areas for Premium Quality Table Wines. Bulletin, Soc. of Medical Friends of Wine. 9(1): 5-7. (Address to the 76th Quarterly Dinner Meeting, 1967.)

BIBLIOGRAPHY OF ADDITIONAL SOURCES

1. Davis Enterprise, "College Tract Papers Filed," September 21, 1923, p. 1, col. 1.
2. Regan, Susan F., "The History of the Famous Hometown 4th Celebrations." Davis Enterprise, June 30, 1950, p. 1, col. 1.
3. Wines and Vines, "Prof. F. T. Bioletti Retires." August 1935.
4. El Rodeo, "Division of Viticulture," (1922), p. 23.
5. California Grape Grower, "The Vineyards of Northern California: Yolo County," March 1, 1922, p. 6.
6. Kruckeberg, Henry W., "A Great Book on California Fruit Growing and the Man Who Wrote It." The California Fruit Bulletin, Nov. 21, 1908.
7. Wickson, E. J., California Fruits and How to Grow Them. (Pacific Rural Press), 1908.
8. Taylor, Norman, Ed. The Garden Dictionary (Houghton and Mifflin Co.), 1936.
9. Amerine, Maynard A., "A Scholar Writes on the University of California Wine Library," Wines and Vines, December, 1971, pp. 20-25.
10. Cruess, W. V., "New Carbonated Beverages Successful," California Grape Grower, June, 1922, p. 6.
11. El Rodeo 1932, 1936.
12. Davis Enterprise, "Alpha Zeta Initiates Al Winkler," March 28, 1963.
13. Wines and Vines, March, 1962, "California Vintners Turn Out En Masse To Honor Dr. A. J. Winkler."
14. Woodland Democrat, "UCD's Professor Winkler Retiring." March, 1962.
15. Yolo County in Words and Picture, (Woodland Democrat), 1926, p. 20.

ALSO:

Larkey, Joann L., "A Selected Bibliography of Sources Pertaining to the History of the Department of Viticulture and Enology at the University of California and the Work of Professor Albert J. Winkler," Term Paper, 1972.

Documents and Photographs from the Archives of the University of California, Davis. University Library, Dept. of Special Collections.

INDEX - A. J. Winkler

- Agricultural Extension Service, 75-76, 107, 109
 Allen, F. W., 71
 Alley, Curtis J., 13, 89
 Almaden Vineyards, 48-49, 110
 American Association for the Advancement of Science, 106
 American Institute of Biological Sciences, 106
 American Society of Enologists, 44, 105-106
 American Society of Horticultural Sciences, 105-106
 American Society of Plant Physiologists, 106
 Amerine, Maynard A., 11, 13, 19, 20, 22, 37, 80-81, 83, 89-90, 95, 106-107
 Anaheim disease, see Pierce's disease
 Apples, 58-59
 Arakelian, K., 50
- Baccigaluppi, Harry, 24, 50-51
 Baker, George A., 92
 Balling/acid ratio, 33, 84. See also Grapes, Maturity Studies
 Baranik, P., 84
 Barovetto, Giovanni, 66, 67
 Bennett, J. P., 59
 Benoist, Louis A., 49
 Berg, Harold W., 13, 89, 91
 Beringer Bros., 108
 Biane, Philo, 42, 50
 Bioletti, Frederic T., 4, 9, 10, 12, 13, 15, 17, 28, 39, 65, 67, 70, 74,
 79, 81, 84, 88, 96
 Bisson, C. S., 71
 Blinn Memorial College, 53, 57
 Bonnet, Leon O., 4, 67, 70
 Borra Winery, 23
 Briggs, Fred N., 40, 97
 Budd Hall, UC Berkeley, 68
 Bundschu, Carl, 50
 Burdette, Albert C., 92
- California State Department of Agriculture, 82-84, 93
 Castor, John G. B., 20, 89
 Chavez, Cesar, 110
 College of Agriculture, UC, 69, 73, 82, 96-102, 109-112
 College Park, Davis, 61-63
 Concannon, Joe [Joseph], 50

Conrad, John P., 63
 Constance, L., 101
 Consumer protection, 82-84, 102, 111-112
 Cooke, G. M., 75
 Couture, Paul, 67
 Cribari, F. [Fiore], 50
 Critchfield, Burke [H.], 20
 Cruess, William V., 10, 13, 88, 101

Daniel, John [Jr.], 50-51, 76
 Davidis, U. X., 86
 Davis, City of, 56, 57, 61, 62, 78
 Davis, Luther D., 13, 92
 de Latour, Georges, 14, 50-51

Farm Advisors, 75, 107, 109
 Farm labor, 110-111
 Ferrara, E., 23
 Filice, M., 50
 Flossfeder, Friedrich C., 4, 69-70
 Foex, Gustave, 1
 Frazier, N. W., 93
 Freeborn, Stanley B., 97-98, 100
 Freitag, J. H., 93

Gallo [E. & J. Winery], 46, 51
 Gallo, Ernest, 40
 General Viticulture, 46-47, 86, 94, 107-108
 Giannini, A. P., 20
 Gifford, E. M., 93
 Goheen, Austin C., 15, 49
 Golden Gate International Exposition, 13
 Grape Day, 45, 103
 Grape: Climatic Regions, 11, 16-18, 19-20, 21, 24, 41-44, 76, 79-80, 93
 Grapes:
 breeding (genetics), 39
 diseases, 33, 35-36, 43, 48-49, 87, 92-93
 grafting, 9
 Maturity Studies, 24, 28-30
 mechanical harvesting, 33, 39-40, 90, 92, 110-111
 overcropping, 31-33
 pruning, 1, 24-26, 28, 30, 32, 34, 65-66, 68, 74, 110-113
 raisin, 27, 32, 74, 84, 87, 111
 shipping, 5-7, 75
 storage, refrigeration, 7, 78

Grapes:

sulphur dioxide treatment, 5-7, 24, 75
 table, 26, 84, 110-111
 thinning, 25-27, 28, 66
 training, 9, 27, 33, 65, 68
 varieties mentioned in the interviews. See pp. 143-144
 vine spacing, 38
 vine supports, 33, 39
 virus--free rootstock, 93
 Grove, The Texas, 2, 52-55
 Guasti [vineyards], 23, 42, 70
 Guymon, James F., 13, 20, 89
 Guyot, Jules, 1

Haraszthy, Agoston, 15
 Hayes, F. M., 71
 Hendrickson, Arthur H., 62
 Hewitt, W. B., 35, 49, 87, 93
 Hilgard, Eugene W., 4, 68-69, 70, 73
 Hilgard Hall, University of California, Berkeley, 58
 Howard, Walter L., 56, 57, 71, 96-97
 Howell, Carroll, 71
 Hughes, Elmer H., 62, 71
 Hunt, Thomas F., 69, 73
 Hutchison, Claude B., 20, 95-97, 100

Inglenook vineyard, 76
 Italian Vineyard Company, 70

Jacob, Harry E., 4, 9, 33, 39, 59, 62, 67, 84, 89
 Jacobson, John, 62
 Jensen, Fred, 75
 Joslyn, M. [Maynard] A., 101, 103

Kant, R. B., 86
 Kasimatis, A. N., 75, 84
 Kearney Agricultural Experiment Station, 65, 84
 Kearney Horticultural Field Station, Reedley, 85, 103
 Kerr, Clark, 99-100, 107
 Kliewer, W. Mark, 91
 Kyle, H., 63

Lanza, H. O., 14, 23-24, 50-51
 Lider, Lloyd A., 13
 Lilleland, Omund, 62
 Lipman, C. B., 69
 Lynn, C. D., 84
 Lyons, J., 62

Marsh, George L., 13, 101
 Marshall, L. K., 23, 50-51, 85
 Martini, L. [Louis] M., 50
 Martini, L. [Louis] P., 50
 Mathé, Charles P., 13
 Mazzoni, Fred, 23
 Meyer, James [H.], 109
 Miller, M. W., 84
 Mirassou family, 50-51
 Morris, Marjorie Winkler, 64
 Morris, Walter, 64
 Morris, Willis T., 64
 Morrow, A. R., 13, 14, 50-51
 Mrak, Emil M., 100-101, 109
 Mudge, C. S., 71
 Muscat Cooperative Winery, 81
 Mytron, John, 66, 67

Nelson, K. E., 84, 89
 nematodes, 33, 87

Oakville Agricultural Experiment Station, 21, 85
 Office International de la Vigne et du Vin, 86, 94, 95
 Olmo, Harold, P., 15, 39-40, 43, 81, 89, 90
 Onran, M., 86
 Ough, C. [Cornelius] S., 89
 Overholser, E. L., 59

Pacific Rural Press, 73
 Parker, H. R., 65
 Paul Masson [winery], 43
 Perelli-Minetti, A. [Antonio], 15
 phylloxera, 33, 48-49, 87
 Pierce's disease, 35-36, 92-93
 Plant, Forrest A., 62
 plant physiology, 3, 58-59, 66

Plocher, Christine, 65
 Plocher, Erwin, 65
 Plocher, Ethel Winkler, 65, 107
 Plocher, Milton, 65
 Plocher, Ronald, 65
 Plocher, Steven, 65
 Price, Harold H., 13
 Proebsting, E. L., 71
 Prohibition, 4, 5-9, 68, 77-78, 103
 Putah Creek, 73

quality standards, 82-84, 87-88

raisins, see Grapes, raisin

Raskin, D. J., 87
 Regan, William M., 62
 Repeal, 14, 24, 77-79, 88
 Rixford, H. L., 50
 Roadhouse, Chester L., 71
 Robbins, W. W., 71
 Rockefeller Foundation, 96
 Roessler, Edward B., 13, 92
 Rosa, Joseph T., 62
 Rossi, E. [Edmund A.], 50
 Rourke, Herb & Mutt, 62
 Ryerson, Knowles A., 96-97

San Francisco Sulphur Company, 7
 Scholarship, A. J. Winkler, 48, 106
 Shemsettin, E. M., 86
 Shulte, Gladys, 76
 Smith, Al [Alfred], 71
 Smith, Ira, 62, 101-102
 Sproul, Robert G., 77, 95, 100
 Storer, Tracy I., 71

Tavernetti, Thomas, 96
 True, Gordon H., 71
 Tufts, Warren P., 60, 71
 Twight, Edmund, 13, 80-81
 Tyree, Richard, 66

United Farm Workers, 110
 United States Department of Agriculture, 78
 University of California, Davis. See pp. 141-142
 University of Missouri, 55
 University of Texas, 3, 54, 55

Van Buskirk, Ray, 26
 Veihmeyer, Frank J., 62

Walker, Harry B., 62
 Weaver, R. J., 89
 Webb, Albert D., 13, 48, 89
 Wente Bros., 14, 48-49
 Wente, Ernest, 48, 50, 51
 Wente, Herman, 50, 51
 West, F., 50
 Wetmore, Charles, 13
 Wetmore, Clarence, 12-13
 Wheeler, J. H., 7
 Whitten, J. C., 55-56, 59
 Wickson, Edward J., 73
 Williams, W. O., 89
 Wilson, E. S. (Woody), 104
 Wine:
 nomenclature, 83-84
 production, 16, 20, 68-69, 76, 80-81, 91, 111-113
 quality control, 82-85, 111-112
 tasting, 77, 82, 92
 Wine Institute, 49, 51, 93
 Wines Mentioned in the Interviews. See p. 143
 Winkler, Charles August, 54
 Winkler, Charles Henry, 55
 Winkler, Katherine Huber, 54
 Winkler, Ernest William, 55
 Winkler, Pearl Bueher, 58, 63-64
 Winkler Vine, 112-113

University of California, Davis

Academic Committees: ad hoc, 97-99
 Budget Committee, 97-102
 Educational Policy, 98-100
 Administrators, 69, 73, 82, 95-102
 Agricultural Engineering, Department of, 71-72, 92
 Agricultural Experiment Station, California, 60, 65, 84-85, 99
 Agronomy Field House, 74-80

University of California, Davis

Animal Science building, 72
 Animal Science, Department of, 71-72
 Armstrong Tract Field House, 74, 112-113
 Bioletti Way, 70
 Botany, Department of, 93
 Chemistry, Department of, 71-72
 Classroom building, 57
 College of Letters and Science, 98
 Creamery building, 74
 Dairy Industry building (Roadhouse Hall), 71
 Dairy Industry, Department of, 71
 Enology Instruction, 76-77, 85-86
 Enology laboratory, 20, 72-73, 89, 95-96
 Entomology, Department of, 93
 Faculty:
 Appointments, 98
 Merit Increases, 98
 Promotions, 98
 recruitment, 89-90
 Faculty Research Lecture, 1, 105
 Fire Department, 74-75
 Food Products, Department of, 3, 14, 88, 101
 Food Technology, Department of, 101
 Haring Hall, 74
 Horticulture building, 71-72
 Interdepartmental research, 13, 87, 92-93
 Library, 72, 94-95, 105
 Mathematics, Department of, 13, 92
 Physical Education Facilities, 103-104
 Plant Pathology, Department of, 49, 87
 Pomology, Department of, 3, 56-59, 71-72
 Quad, 104
 Soils and Irrigation building, 72
 Student Activities:
 Honor Fraternities, 104
 Labor Day, 104
 Picnic Day, 102-103
 Temporary Building No. Six, 72
 Tercero Hall, 74
 University Farm, 60, 67, 71
 Veterinary Medicine, Department of, 71, 74
 Vineyards, 65, 68-69, 73-74, 112-113
 Viticulture and Enology, Department of, 3, 60, 67-69, 72-73, 88-89, 95-97,
 101-103, 106-107, 109-112
 Viticulture Field House, 20, 74, 80
 Viticulture Nursery and Grafting House, 74
 Viticulture students, 75-77, 86, 113-114
 Walker Hall (Agricultural Engineering), 72
 Wellman Hall, 72
 Wickson Hall, 72-73, 94-95
 Zoology, Department of, 71-72

Wines Mentioned in the Interviews

Chardonnay, 11
 Claret, 11
 Gewürtztraminer, 11
 Nebbiolo, 14
 White Riesling, 11

Grape Varieties Mentioned in the Interviews

Alicante Bouschet, 8, 24
 Almeria, 9
 Black Monukka, 24
 Black Muscat, 31
 Cabernet franc, 11, 12
 Cabernet Sauvignon, 11, 12, 42, 43
 Carignane, 8, 41
 Chardonnay, 11, 42, 43
 Chenin blanc, 42, 43
 Emerald Riesling, 43
 Emperor, 9
 Folle blanche, 42
 Gewürtztraminer, 42, 43
 Grand noir, 8
 Green Hungarian, 8
 Grenache, 8
 Malaga, 9, 26
 Mataro, 8
 Merlot, 11, 12
 Mission, 8, 15, 112-113
 Mondeuse, 42
 Monica, 15
 Muscat, 23, 24, 26, 84
 Muscat of Alexandria, 26
 Mustang, 2
 Nebbiolo, 14
 Nebbiolo fino, 14
 Olivette, 31
 Perlette, 66, 90
 Petit Bouschet, 8
 Petit Verdot, 11, 12
 Petite Sirah, 8, 12
 Pinot Chardonnay, 22
 Pinot noir, 8, 43
 Red Malaga, 9
 Ribier, 9
 Ruby Cabernet, 43

Sauvignon blanc, 38, 43
Semillon, 42, 43
Thompson Seedless, 9, 19, 27, 29, 66, 111
Tokay, 9, 26, 29
White Riesling, 11, 42
Vitis candicans. See Mustang
"Zierfandler," 15
Zinfandel, 8, 14-15, 41

Ruth Teiser

Born in Portland, Oregon; came to the Bay Area in 1932 and has lived here ever since.

Stanford, B. A., M. A. in English; further graduate work in Western history.

Newspaper and magazine writer in San Francisco since 1943, writing on local history and business and social life of the Bay Area.

Book reviewer for the San Francisco Chronicle since 1943.

Joann L. Larkey

Daughter of L. D. Leach, Professor of Plant Pathology, Emeritus, was born in Woodland, California in 1929 and was subsequently educated in the Davis public school system. After enrolling for one year on the Davis campus she transferred to the University of California at Berkeley, receiving a B.A. degree in Decorative Arts in 1951. It was not until 1962 that she and her husband, Richard J. Larkey, M.D., and the couple's son and daughter established a home in Davis, where Dr. Larkey is engaged in the general practice of medicine. An interest in California history and the demonstrated need for a documented history of the Davis area led the interviewer into a city-sponsored research project that has received wholehearted support from the academic community on the Davis campus.

During 1968, a series of centennial events commemorated the 100th anniversary of the University of California's charter and the coincidental 1868 founding of the Town of Davisville. Having made extensive use of the University Library's valuable resources, Mrs. Larkey served as editor of Davisville '68, The History and Heritage of the City of Davis, published by the Davis Historical Landmarks Commission in 1969. Since that time she has continued to assist with the documentation of historic sites in Yolo County, has served on the board of directors of the U C Davis Library Associates and authored articles that illustrate the influence of people and events on changes that have vastly transformed the Davis area during a relatively few years of recorded history.

